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Massachusetts Health Care Cost Trends

Trends in Health Expenditures

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DIVISION OF
Health Care
Finance and Policy

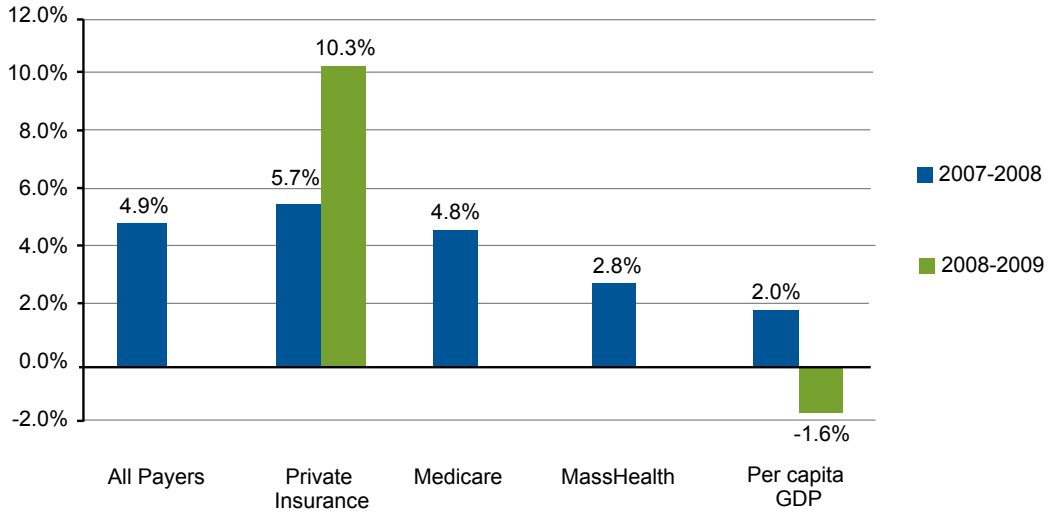
Table of Contents

Executive Summary

Pursuant to the provisions of M.G.L. c. 118G, § 6 1/2, the Massachusetts Division of Health Care Finance and Policy (DHCFP) is required to conduct an annual study of health care cost trends in the Commonwealth, and the factors that contribute to cost growth. This report documents the major trends in total health care spending for care covered by fully insured and self-insured comprehensive private health plans in Massachusetts from 2007 to 2009, as well as trends in Medicare and MassHealth (the Commonwealth's Medicaid program) spending from 2007 to 2008.[1]

From 2007 to 2009, health care spending in Massachusetts continued to outpace growth in the economy (Figure A). Nationally, the economic downturn resulted in a decline of enrollment in employer-sponsored health insurance and lower health care spending growth than at any time during the past 50 years. In Massachusetts, the impact of the economic downturn was delayed and not as severe as for the nation as a whole, and health care spending growth was largely uninterrupted.

Figure A: Percent Change in Estimated Health Care Spending Per Member Year by Payer and Massachusetts GDP Per Capita, 2007-2009



Source: Mathematica Policy Research analysis of private, Medicare, and MassHealth claims for Massachusetts residents; and U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at http://www.bea.gov/regional/gsp/action.cfm, accessed 6/2/2011.

Note: Health care spending estimates include patient cost-sharing.

1 Total spending includes the amounts paid by insurers, self-insured employers, and public programs as well as cost-sharing and out-of-pocket expenses such as co-payments, coinsurance, and deductibles.

Overview of Private and Public Payers

Private insurers and self-insured health plans collectively paid health care providers an estimated $15.9 billion, or 43 percent of estimated total health care spending, for services used by Massachusetts residents under comprehensive coverage arrangements in 2008 (Figure B).[2] Medicare accounted for $11.6 billion or 32 percent of this spending, while MassHealth accounted for $9.4 billion or 26 percent in 2008. Patterns of spending by payer reflect differences in their covered populations as well as differences in payment practices.

Private Coverage

Private insurance covers the largest proportion of the population. Estimated spending per member year for residents enrolled in employer-sponsored or individual coverage was $4,427 in 2008, or one-third that of either Medicare or MassHealth (Table 1).

Medicare

Medicare covers predominantly elderly residents, as well as residents under age 65 who are disabled. On average, this population consumes significantly more health care services than the privately insured population. Consequently, Medicare spending per member year ($12,995 in 2008 among fee-for-service enrollees) is predictably much higher.

MassHealth

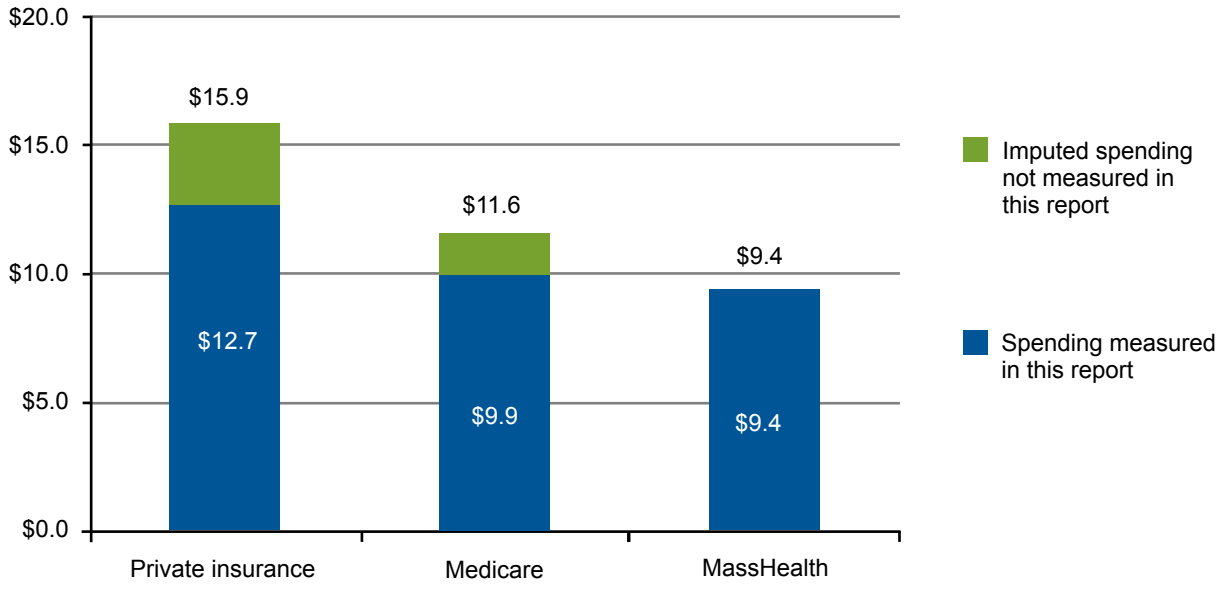
MassHealth covers the most diverse population and the greatest range of services—including primary and acute care services for low income individuals and families, and institutional and community-based long-term care for the elderly and other disabled adults and children. MassHealth covers nearly two-thirds of Massachusetts nursing home residents, approximately one-third of Massachusetts children, and more than a quarter of non-elderly Massachusetts adults with disabilities.[3] MassHealth spending per member year ($14,378[4] in 2008) reflects the high health care needs of the elderly and disabled populations that it serves, as well as the broad range of services that it covers.

2 In 2008, employer-sponsored health insurance covered 66 percent of the Massachusetts population, Medicare covered 15 percent, and (other) public and other programs covered 15 percent. See: Division of Health Care Finance and Policy, Health Insurance Coverage in Massachusetts: Results from the 2008-2010 Massachusetts Health Insurance Surveys, December 2010. Available at: http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/10/mhis_report_12-2010.pdf, accessed 6/2/2011.

3 Robert Seifert and Stephanie Anthony, The Basics of MassHealth. Massachusetts Medicaid Policy Institute Fact Sheet, February 2011. Available at: http://bluecrossfoundation.org/~/media/MMPI/Files/The%20Basics%20of%20the%20Massachusetts%20MassHealth%20Program%20February%202011.pdf, accessed 5/13/2011.

4 The spending reflected here includes both fee-for-service (FFS) spending and the capitated spending of managed care organizations (MCOs). Most of the detailed analysis in the report reflects only the MassHealth FFS spending.

Figure B: Estimated Total Health Care Spending for Massachusetts Residents for Covered Services by Major Payer, 2008 ($ in billions)



Source: Mathematica Policy Research analysis of private, Medicare, and MassHealth claims for Massachusetts residents.

Note: Estimates reflect spending under comprehensive health plans; spending under supplemental private coverage (including Medigap coverage, workers compensation, or other private coverage) is not included. Spending is imputed to estimate the proportion of total spending under comprehensive coverage contracts that is included in this report and relative spending among payers. Imputed spending for privately insured services is calculated as total spending in claims data reported by Blue Cross Blue Shield of Massachusetts, ConnectiCare, Harvard Pilgrim Health Care, Health New England, and Tufts Health Plan, divided by the proportion of all (resident and nonresident) member months in calendar year 2008 attributable to these carriers (80 percent) as reported to DHCFP. Imputed Medicare spending is estimated as the average monthly local plan benchmark payment rate for each Medicare Advantage enrollee in Massachusetts multiplied by the number of Massachusetts beneficiaries enrolled in Medicare Advantage plans in 2008. (See: Kaiser Family Foundation, Medicare Health and Prescription Drug Plan Tracker, available at: http://healthplantracker.kff.org/georesults.jsp?r=26&n=&i=&c=&pt=8&yo=2&x=17&y=10, accessed 5/12/2011).

Table 1: Spending and Use of Health Care Services by Major Payer and Type of Service, 2008-2009

	Private insurance		Medicare[a]	MassHealth[a]
	2008	2009	2008	2008
Total spending				
Spending per member year	$4,427	$4,885	$12,995	$14,378
Annual growth in spending per member per year	5.7%	10.3%	4.8%	2.8%
Inpatient hospital				
Spending per member per year	$704	$776	$3,998[b]	$955
Annual growth in: Spending per member per year	6.3%	10.3%	4.9%	7.9%
Admissions per member year	-0.6%	4.0%	-0.2%	--[c]
Spending per admission	7.3%	6.3%	5.2%	--[c]
Outpatient hospital services				
Spending per member year	$1,035	$1,172	$1,569	$566
Annual growth in: Spending per member per year	10.2%	13.2%	6.2%	-4.9%
Services per member year	3.3%	3.6%	5.1%	-5.9%
Average spending per service	6.7%	9.2%	1.1%	1.1%
Professional services				
Spending per member year	$1,410	$1,576	$2,464	$923
Annual growth in: Spending per member per year	9.2%	11.8%	1.8%	8.0%
Services per member year	3.4%	8.7%	2.2%	8.4%
Average spending per service	6.1%	3.1%	-0.4%	-0.4%
Prescription drugs				
Spending per member year	$847	$890	$2,213	$652
Annual growth in: Spending per member per year	-1.6%	5.1%	4.0%	4.7%
Number of filled prescriptions per member year	-5.7%	3.4%	1.5%	6.2%
Average spending per filled prescription	3.0%	2.1%	2.5%	-1.4%
Diagnostic imaging services				
Spending per member year	$421[d]	$475[d]	$602	$151
Annual growth in: Spending per member per year	8.3%	7.5%	1.8%	26.8%
Services per member year	0.5%[e]	-0.3%[e]	2.2%	42.0%[f]
Average spending per service	7.7%[e]	7.8%[e]	-0.5%	-10.7%

Source: Mathematica Policy Research analysis of private insurance, Medicare, and MassHealth claims for Massachusetts residents.

Note: Estimates include the amounts that insurers, self-insured employers, Medicare, and MassHealth paid for covered services, as well as cost-sharing paid by patients. Spending for other services not allocated to these spending categories—including, for example, rehabilitation or psychiatric hospital care, and institutional long-term care—is included in total spending but otherwise not shown. All growth estimates are calculated relative to the prior year.

[a] Medicare and MassHealth claims data for 2009 are not yet available, so only 2008 data are shown. MassHealth estimates include only spending that received federal matching funds.

[b] Higher Medicare inpatient spending per member year reflects much higher rates of admission among Medicare beneficiaries (385.3 admissions per member year in 2008) than among privately insured residents (69.3 admissions per member year).

[c] Estimates are not reported due to data limitations.

[d] Estimate includes capitated spending as well as the professional component of inpatient imaging when billed separately.

[e] Estimates reflect changes in fee-for-service spending for services delivered in outpatient settings.

[f] For MassHealth, the number of imaging services increased from 1.16 to 1.64 per member year. The number of privately insured imaging services, by comparison, increased from 0.90 to 0.91 per member year, and the number of Medicare-covered imaging services increased from 3.74 to 3.83 per member year.

Key Findings

Private payer health spending in Massachusetts outpaced national health care spending and spending by Medicare and MassHealth

- **Spending per privately insured member grew 6 percent from 2007 to 2008 and another 10 percent from 2008 to 2009**. This rate of growth was substantially higher than the increase in national personal health care expenditures per capita from 2008 to 2009. In 2009, national personal health care spending per capita increased 4.6 percent—a deceleration from 4.9 percent growth in 2008.[5]
- **Spending by private payers grew faster than spending by public payers.** The rate of growth for spending on privately insured people from 2007 to 2008 also outpaced the growth in spending for Massachusetts residents in Medicare (4.8 percent) or MassHealth (2.8 percent) during the same time period (Figure A). The rates of growth for both private and public payers in Massachusetts continued to outpace increases in per capita state gross domestic product[6] and wages.[7]

Faster growth in spending by private payers was largely the result of increasing prices

- **Rising prices played a significant role in increasing private spending for inpatient and outpatient hospital services, as well as physician and other professional services**. Higher prices explained virtually all of the increase in private inpatient spending from 2007 to 2009. Similarly, increases in prices accounted for about half of the growth in outpatient spending from 2007 to 2008, and virtually all of the growth from 2008 to 2009 (when spending per member year grew 13 percent). For professional services, higher prices explained 77 percent of the growth in spending from 2007 to 2008, and 88 percent of the increase from 2008 to 2009.
- **Private spending for drugs was largely driven by price increases in non-generic drugs.** Although overall increases in drug spending were more modest than those for other services, price increases for non-generic drugs were a major factor in rising spending. From 2007-2009, the average price of generics grew less than two percent per year, compared with a growth of more than ten percent for non-generics.
- **Increased private spending for imaging was driven by higher prices per service.** For all types of imaging, higher spending per service—not greater use of imaging services—drove much or all of the growth in spending per member year.

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[5] Price factors accounted for 60 percent of the 4.6 percent change, while non-price factors accounted for the remaining 40 percent. See: Anne Martin et al. "Recession Contributes to Slowest Annual Rate of Increase in Health Spending in Five Decades," *Health Affairs*, Volume 30, No.1 11-22; January 2011.

[6] Between 2007 and 2009, Massachusetts real GDP growth declined by 1.8%. The nation experienced a decline of 2.8% over the same time period. Source: US Bureau of Economic Analysis.

[7] Massachusetts median income declined 0.7% between 2007 and 2009, falling from $64,515 in 2007 to $64,081 in 2009. Available at: http://chn.org/pdf/2010/ACSmedincome_state2007-09.pdf, accessed 6/7/2011.

Growth in Medicare and MassHealth spending predominately reflected increases in service use, rather than growth in prices

- **Spending growth in physician and other professional services for public payers was due to increased utilization.** Growth in Medicare spending for professional services (1.8 percent) was entirely driven by increased use of services. Similarly, in MassHealth, an eight percent increase in spending per member year for professional services in 2008 corresponded to 8.4 percent growth in service use per member year.
- **Increased utilization led to the growth in public payer spending for outpatient hospital services.** Nearly all of the growth in Medicare spending per member year for outpatient services (5.1 percentage points of 6.2 percent total growth) was due to increased utilization. Similarly, all of the decrease in MassHealth outpatient hospital spending per member year was due to decreased utilization.
- **Growth in public payer spending for imaging was due to increased utilization.** For Medicare and MassHealth, growth in spending per member year on imaging was driven more by increased service use and less by changes in spending per service. In both programs, average spending per diagnostic imaging service declined from 2007 to 2008, while the use of diagnostic imaging services per member increased. Spending increases for Medicare for diagnostic imaging was low at 1.8 percent (Table 1).

Other Key Findings on Spending Trends

- **While there was rapid growth in nearly every category of private insurance spending on a per member year basis, it was most significant for physician and other professional services (21 percent from 2007 to 2009) and outpatient hospital services (more than 23 percent from 2007 to 2009).** These two categories of spending accounted for 84 percent of all privately insured spending growth between 2007 and 2009. For MassHealth, inpatient hospital care and professional services were the fastest growing sectors. Outpatient services were the fastest growing for Medicare.
- **Spending for outpatient hospital services grew much less for public payers than for the private sector.** From 2007 to 2008, spending per member year for hospital outpatient care grew 6.2 percent for Medicare and decreased 4.9 percent for MassHealth. This compares with 10.2 percent growth in spending for privately insured hospital outpatient services.
- **Inpatient hospital spending growth was slower for Medicare than for the private sector.** Inpatient spending for Medicare members increased 4.9 percent per member year, compared with 6.3 percent growth per member year for privately insured inpatient care. MassHealth inpatient spending growth outpaced the private market at 7.9 percent.

- **For prescription drugs, growth in private insurance spending lagged behind spending growth in Medicare and MassHealth**. Private insurance prescription drug spending per member year fell slightly from 2007 to 2008 as utilization declined but then grew 5.1 percent from 2008 to 2009. This compares with growth in spending per member per year between four and five percent in Medicare and MassHealth, respectively.
- **Behavioral health was, by far, the fastest-growing category of privately insured inpatient hospital spending**. Although behavioral health accounts for a relatively small proportion of total spending, it grew rapidly from 2007 to 2009.[8] Inpatient behavioral health spending per member year increased 49 percent from 2007 to 2008, and 14 percent from 2008 to 2009. Unlike other types of inpatient expenses, growth in behavioral health inpatient spending was linked to growth in the volume of care.

Additional Key Findings

- **Capitation eroded further as a method of payment in the private Massachusetts health care market.** In stark contrast to the increasing political and industry support for alternate payment methods, including support of global payments in recommendations issued by the Special Commission on the Health Care Payment System in 2009, relatively few private health care services were financed through capitated payments.
- **A majority of private inpatient spending was devoted to care delivered in tertiary care or specialty and teaching hospitals.** In 2009, two-thirds of privately insured inpatient spending was for care obtained in tertiary care or specialty and teaching hospitals, either in the Boston metro area (52 percent) or elsewhere in Massachusetts (14 percent). Just 29 percent of private inpatient spending was for care obtained in community hospitals. For Medicare and MassHealth enrollees, about half of inpatient spending occurred in tertiary care hospitals, while care in community hospitals accounted for 32 percent of spending for MassHealth and 41 percent of spending for Medicare.

Conclusion

Health care spending continues to outpace inflation, wage growth, and other measures of economic growth in Massachusetts. As demonstrated in this report, the significance of price in driving higher spending for privately insured health care warrants serious consideration as strategies to reduce health care cost growth are crafted and implemented. It seems likely that greater coordination of payment levels, with new collaborative strategies that engage payers and providers as well as employers and consumers, will be needed to ensure that rising prices do not ultimately derail residents' access to high quality, affordable health care.

[8] Effective July 2009, Massachusetts significantly extended the scope of its mental health parity law. In addition, effective October 2009, the federal Mental Health Parity and Addiction Equity Act of 2008 (P.L. 110-343(B)) eliminated annual, lifetime, or treatment limits for mental and health or substance abuse disorders that were more restrictive than those for other medical benefits, cost-sharing that was higher than for other medical benefits, and plan rules that restricted patients from using out-of-network mental health care providers.

Introduction

Pursuant to the provisions of M.G.L. c. 118G, § 6 ½, the Massachusetts Division of Health Care Finance and Policy (DHCFP) is required to conduct an annual study of health care cost trends in the state and the factors that contribute to cost growth. This report documents the major trends in total health care spending for care covered by fully insured and self-insured comprehensive private health plans in Massachusetts from 2007 to 2009, as well as trends in Medicare and MassHealth (the Commonwealth's Medicaid program) spending from 2007 to 2008.

Similar to the national trend, health care spending in Massachusetts represented a higher share of the state's total economy in 2009 than in 2007.[9] Nationally, the economic downturn resulted in a decline of enrollment in employer-sponsored health insurance and lower health care spending growth than at any time during the past 50 years. In Massachusetts, the impact of the economic downturn was delayed and not as severe as for the nation as a whole, and health care spending growth was largely uninterrupted.

[9] National spending for personal health care services increased 4.6 percent from 2008 to 2009, and it grew much faster than the economy as a whole. In 2009, national health care expenditures accounted for 17.6 percent of national gross domestic product (GDP), compared with 16.2 percent in 2007. See: Anne Martin et al. "Recession Contributes to Slowest Annual Rate of Increase in Health Spending in Five Decades," *Health Affairs*, Volume 30, No.1 11-22; January 2011.

Data Sources and Methodology

Findings related to private cost trends are based on paid-claims data that Massachusetts health insurers reported to the Massachusetts Health Care Quality and Cost Council and the Division of Health Care Finance and Policy from January 2007 through mid-2010. All claims were allocated to the calendar year of the date of service. Data from five major health insurers[10] were used, representing approximately 79 percent of privately insured Massachusetts residents. The detailed spending estimates presented in this report represent these carriers' fee-for-service business, accounting for 95 percent of their total payments for all services in 2009. All fee-for-service spending estimates were adjusted actuarially to account for claims that were incurred but not yet reported, as well as for prescription drug spending among enrollees in self-insured plans utilizing a separate "carve-out" prescription drug plan. The carriers separately reported payments to providers that did not flow through their claims systems, including capitation payments, withholds, and pay-for-performance bonuses. These non-claims amounts are also included in this report.

Medicare and MassHealth spending amounts are similarly based on analysis of claims data. Medicare enrollment and spending amounts were tabulated from Parts A, B, and D claims data files prepared by the Centers for Medicare and Medicaid Services (CMS). MassHealth enrollment and spending estimates were based on tabulations of the quarterly Medicaid statistical information system (MSIS) files for the second quarter of fiscal year 2007 (January to March 2007) through the first quarter of fiscal year 2010 (October to December 2009). The analytic methodologies are described in greater detail in the accompanying *Technical Appendix*.

Spending includes the amounts paid by insurers, self-insured employers, and public programs, as well as the cost-sharing amounts such as deductibles and copayments paid by members. Throughout this report, the level and growth of spending by each payer group—private insurers, Medicare, and MassHealth—are reported in total and per health plan member year. Total spending is the sum of all spending during the calendar year. Member years are calculated as average monthly enrollment during the calendar year.

[10] The carriers included in this analysis are Blue Cross Blue Shield of Massachusetts, Connecticare, Harvard Pilgrim Health Care, Health New England, and Tufts Health Plan.

II. Spending for Privately Insured Services: 2007-2009

This chapter describes changes in spending from 2007 to 2009 for care obtained by Massachusetts residents with private comprehensive health insurance. The analysis relied on private claims data reported by five of the largest insurance carriers in Massachusetts. The claims data reflect spending under both fee-for-service (FFS) and capitated health plans, and for enrollees in either insured plans or self-insured employer plans. Total spending and related trends are reported overall and separately for four major types of services: inpatient hospital care; outpatient hospital care; physician and other professional services; and prescription drugs. In addition, trends in spending for imaging services are reported, including imaging services provided by hospital outpatient departments, other facilities that provide imaging services, and physicians and other health care professionals.

Many factors likely influenced the observed patterns of spending for privately insured health care but two are especially noteworthy. First, while the analysis included the largest carriers in Massachusetts and represents about 80 percent of privately insured residents each year, several of the selected carriers lost enrollment during the period spanning 2007 to 2009. While changes in enrollment certainly affected the total volume of services used, it is unclear how changes in the composition of the insured population may have affected the observed level and geographic location of service use.

Second, changes in insurance regulation may have affected the use of behavioral health care services in 2009. Effective July 2009, Massachusetts significantly extended the scope of its mental health parity law.[11] In addition, effective October 2009, the federal Mental Health Parity and Addiction Equity Act of 2008 (P.L. 110-343(B)) eliminated annual, lifetime, or treatment limits for mental and health or substance abuse disorders that were more restrictive than those for other medical benefits, cost-sharing that was higher than for other medical benefits, and plan rules that restricted patients from using out-of-network mental health care providers. This law affected self-insured health plans (which are outside the scope of state law) as well as fully insured plans. While effective for just part of 2009, these provisions appear to have contributed to greater spending for privately insured mental health care in 2009.

[11] Specifically, Chapter 256 of the Acts of 2008 added eating disorders, post traumatic stress disorder, substance abuse disorders, and autism to the list of biologically-based mental disorders covered by Massachusetts mental health parity law. See: Office of Consumer Affairs and Business Regulation, 2009-04 Changes to State and Federal Mental Health Parity Laws. Available at: http://www.mass.gov/?pageID=ocaterminal&L=6&L0=Home&L1=Business&L2=Insurance&L3=Division+of+Insurance+Regulatory+Information&L4=DOI+Regulatory+Bulletins&L5=2009+DOI+Bulletins&sid=Eoca&b=terminalcontent&f=doi_Bulletins_bulletins_09_04&csid=Eoca, accessed 5/12/2011.

A. Overview

Spending for privately insured health care in Massachusetts was nearly $4,900 per member year in 2009 (Table 2). This estimate reflects spending in fully insured individual and group products as well as self-insured plans. Average spending per member year grew nearly six percent from 2007 to 2008, and more than 10 percent from 2008 to 2009. The faster growth in total spending per member year from 2008 to 2009 reflected higher spending growth in every service category (Figure C).

Table 2: Total Spending for Privately Insured Health Care by Type of Service, Spending per Member Year, and Rates of Change, 2007-2009

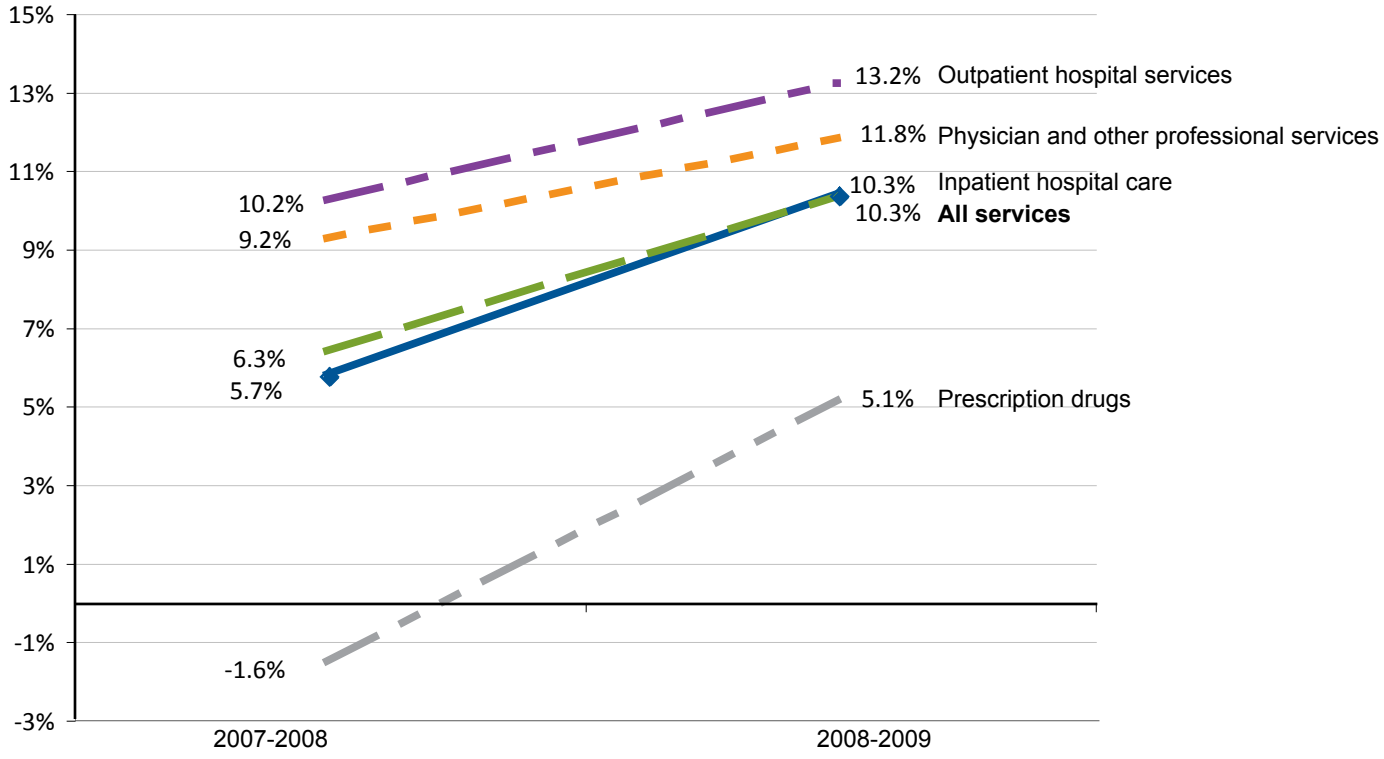
	2007	2008	2009	Average annual change 2007-2009	Annual change: 2007-2008	Annual change: 2008-2009
Total spending ($ millions)						
All services	$12,172.4	$12,662.0	$13,491.0	5.3%	4.0%	6.5%
Inpatient hospital care	$1,925.0	$2,013.8	$2,144.5	5.5%	4.6%	6.5%
Outpatient hospital services	$2,732.1	$2,961.6	$3,236.5	8.8%	8.4%	9.3%
Physician and other professional services	$3,752.7	$4,031.9	$4,351.5	7.7%	7.4%	7.9%
Prescription drugs	$2,501.1	$2,421.9	$2,457.3	-0.9%	-3.2%	1.5%
All other services	$670.0	$690.0	$877.0	14.4%	3.0%	27.1%
Capitation and other adjustments	$591.4	$542.8	$424.2	-22.2%	-11.1%	-32.0%
Spending per member year						
All services[a]	$4,187	$4,427	$4,885	8.0%	5.7%	10.3%
Inpatient hospital care	$662	$704	$776	8.3%	6.3%	10.3%
Outpatient hospital services	$940	$1,035	$1,172	11.7%	10.2%	13.2%
Physician and other professional services	$1,291	$1,410	$1,576	10.5%	9.2%	11.8%
Prescription drugs	$860	$847	$890	1.7%	-1.6%	5.1%
All other services	$230	$241	$318	17.4%	4.7%	31.6%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

[a] Spending per member year for all services includes carrier payments that do not flow through the claims system and are not shown by type of service.

Note: Inpatient and outpatient facility expenditures exclude professional services billed separately. All other services includes skilled nursing facilities, non-acute institutional care, and other unclassified claims. The capitation adjustment reconciles total capitation payments and the fee-for-service equivalents that carriers reported at the claims level; other reported payments include pay-for-performance incentive payments and network management fees that did not flow through the claims system.

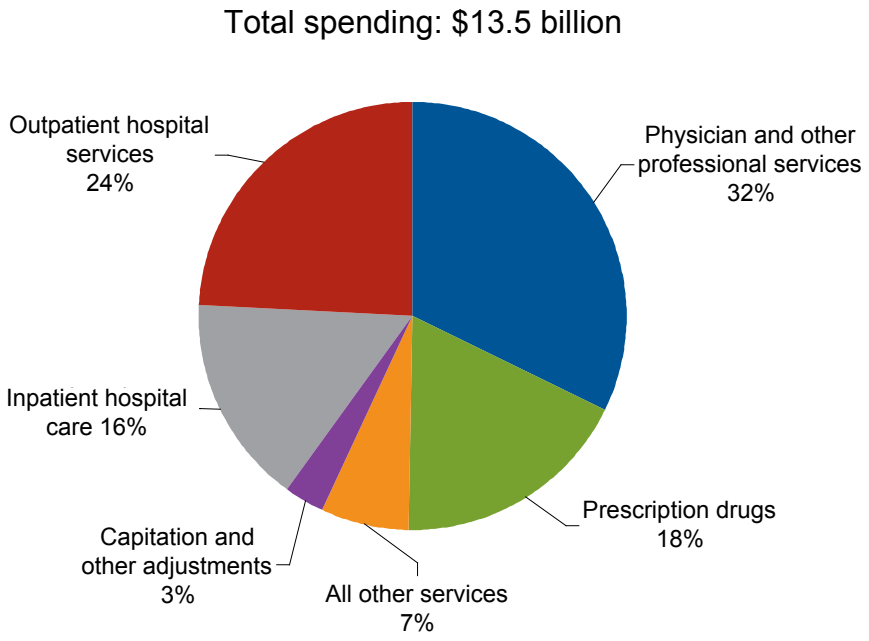
Figure C: Annual Rates of Growth in Spending per Member Year for Privately Insured Health Care by Type of Service, 2007-2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

The largest category of spending for privately insured health care in 2009 was for physician and other professional services (32 percent of total spending that year), followed by spending for outpatient hospital care (24 percent) (Figure D). Spending per member year for services in these two categories also grew faster from 2007 to 2009 than spending in any other category of health care services. From 2007 to 2009, spending per member year grew at an average rate of more than 10 percent per year for physician and other professional services, and nearly 12 percent per year for hospital outpatient services (Table 2).

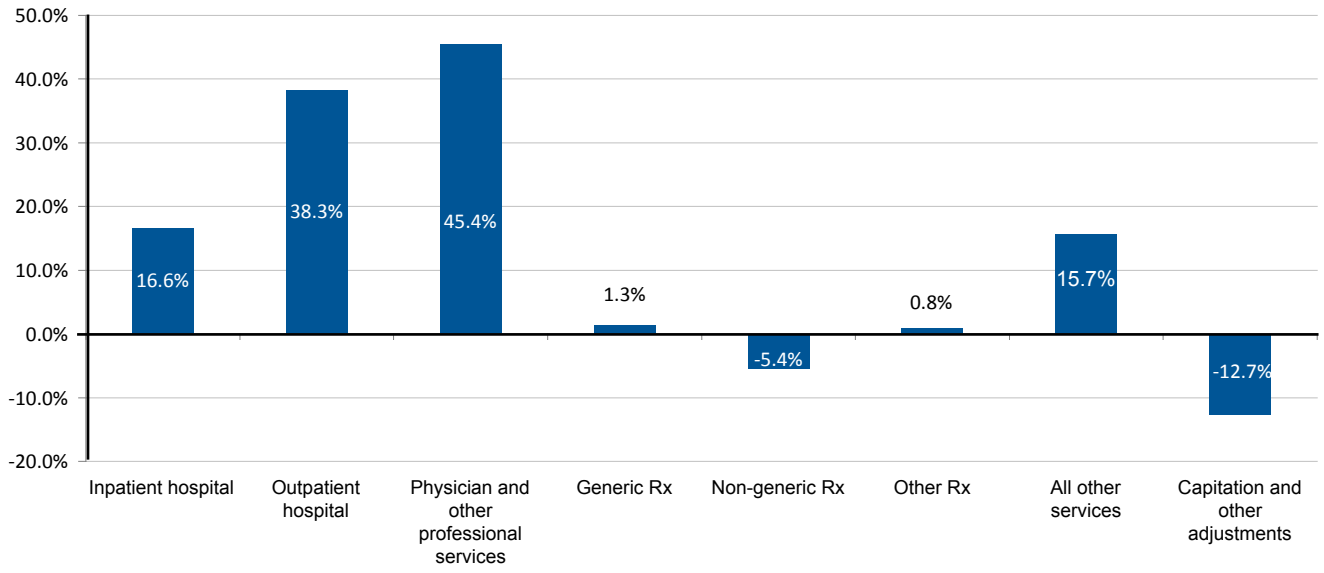
Figure D: Distribution of Spending for Privately Insured Health Care by Type of Service, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Inpatient and outpatient facility expenditures exclude professional services billed separately. All other services include skilled nursing facilities, non-acute institutional care, and other unclassified claims. The capitation adjustment reconciles total capitation payments and the fee-for-service equivalents that carriers reported at the claims level; other reported payments include pay-for-performance incentive payments and network management fees that did not flow through the claims system.

Increased spending for physician and professional services and for hospital outpatient services together accounted for approximately 84 percent of the total growth in spending for privately insured health care from 2007 to 2009 (Figure E). Increased spending for physician and other professional services accounted for 45 percent of total spending growth, while hospital outpatient care accounted for 38 percent of total spending growth, and increased spending for inpatient care accounted for about 17 percent. Spending for prescription drugs represented a net reduction over this period as spending for branded (non-generic) drugs declined.

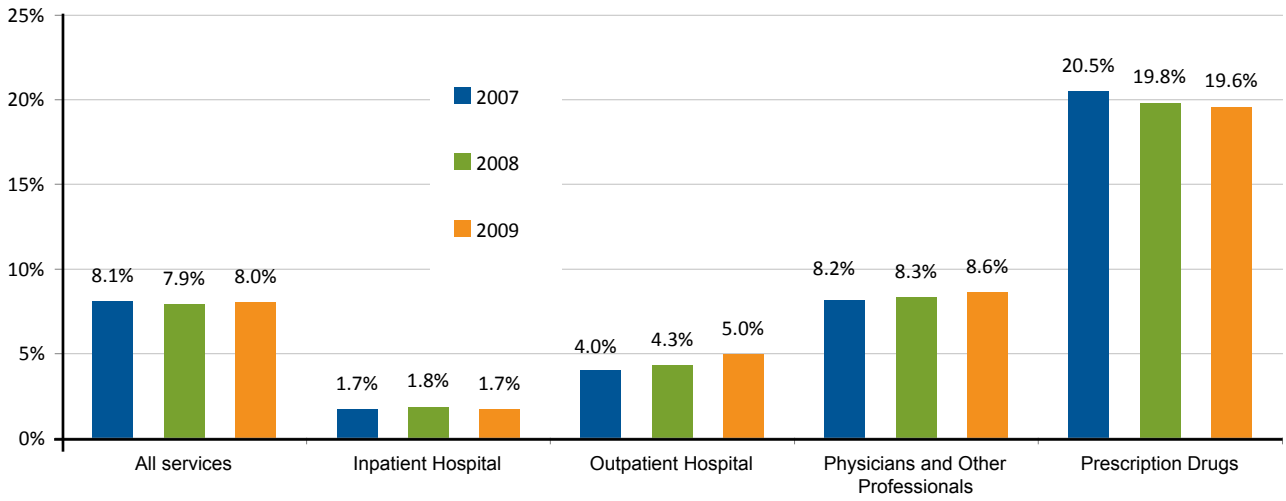
Figure E: Growth in Spending for Privately Insured Health Care by Type of Service as a Percent of Total Spending Growth, 2007-2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Notes: Inpatient and outpatient facility expenditures exclude professional services billed separately. All other claims includes skilled nursing facilities, non-acute institutional care, and other unclassified claims. Other adjustments include reconciliation of total capitation payments and the fee-for-service quivalents that carriers reported at the claims level, plus other reported payments (such as pay-for-performance incentive payments and network management fees) that did not flow through the claims system.

Cost-sharing for physician and other professional services increased one percentage point while cost-sharing for outpatient care increased about half of one percentage point from 2007 to 2009. However, this increase was largely offset by somewhat lower cost-sharing for prescription drugs, as spending for non-generic drugs, which are often assigned higher copayments in tiered drug plans, declined (Figure F).[12]

Figure F: Consumer Cost-Sharing as a Percent of Total Spending for Privately Insured Health Care by Type of Service, 2007-2009

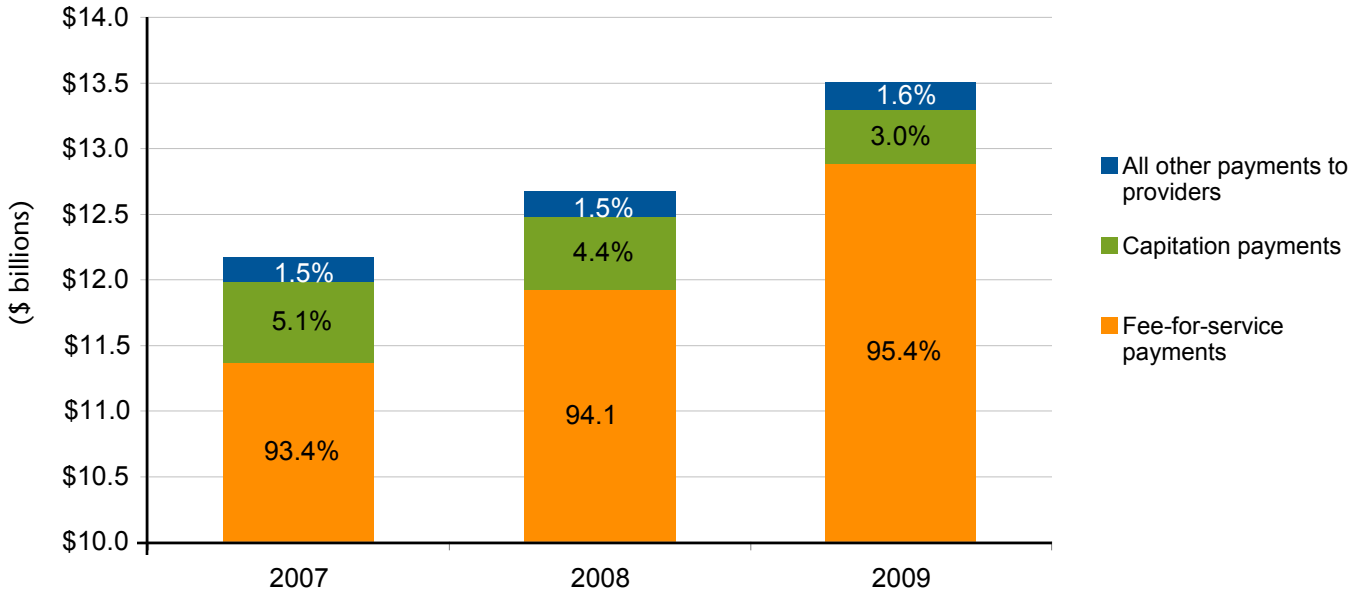


Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Notes: Estimates include fee-for-service payments, and exclude capitated claims and claims with additional third-party payers. Cost-sharing includes deductibles, coinsurance amounts, and copayments, and excludes consumer (or employee contributions to) premiums.

[12] Benefit designs increased cost-sharing over this period, especially for small groups (See: Division of Health Care Finance and Policy, *Massachusetts Health Care Cost Trends: Premium Levels and Trends in Private Health Plans 2007-2009*, May 2011. Available at: www.mass.gov/dhcfp/costtrends, accessed 6/5/2011.) The spending measures presented in this report reflect actual use of services in response to these benefit design changes.

Fee-for-service (FFS) was the dominant method of paying providers among the carriers that are the source of the claims data analyzed in this chapter (Figure G). Among these carriers, 95 percent of total spending in 2009 was paid on a FFS basis, a slightly higher proportion than in 2007 (93 percent). Conversely, capitated payments comprised a smaller proportion of these carriers' spending for privately insured services in 2009 (three percent) than in 2007 (five percent).

Figure G: Capitated, Fee-for-Service, and Other Spending as a Percent of Total Spending for Privately Insured Health Care, 2007-2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Other reported payments include pay-for-performance incentive payments and network management fees that did not flow through the claims system.

In the following sections, spending for privately insured services in each of four major spending categories—inpatient hospital care, outpatient hospital care, physician and other professional services, and prescription drugs—are reported. All spending estimates reflect both FFS spending including deductibles and co-payments, as well as capitated spending for services when attributable to a specific claim. The estimates of price change underlying the analysis of service category spending rely only on FFS payments, reflecting actual prices paid. Additional payments to providers, such as incentive payments, risk adjustments, and management fees, are not included in estimates of spending in any of the service categories. The chapter concludes with an analysis of trends in spending for outpatient imaging services, including facility charges (reported in spending for hospital outpatient services) and professional charges (reported in spending for physician and other professional services).

B. Hospital Inpatient Care

Among the carriers represented in this analysis, total spending for inpatient care was $2.1 billion in 2009, or $776 per member year. Spending per member year grew six percent from 2007 to 2008, and 10 percent from 2008 to 2009 (Table 3).

Table 3: Spending for Privately Insured Inpatient Care and Spending per Member Year by Type of Admission, 2007-2009

	All stays[a]	Type of admission			
		Surgical	Medical	Behavioral health	Maternity and newborn care
Total spending ($ million)					
2007	$1,925.0	$846.6	$588.9	$31.3	$303.9
2008	$2,013.8	$878.1	$611.1	$45.8	$321.4
2009	$2,144.5	$904.3	$670.1	$50.6	$353.3
Average annual change, 2007-2009	5.5%	3.4%	6.7%	27.2%	7.8%
2007-2008	4.6%	3.7%	3.8%	46.6%	5.8%
2008-2009	6.5%	3.0%	9.6%	10.4%	9.9%
Spending per member year					
2007	$662.1	$291.2	$202.5	$10.8	$104.5
2008	$704.1	$307.0	$213.7	$16.0	$112.4
2009	$776.4	$327.4	$242.6	$18.3	$127.9
Average annual change, 2007-2009	8.3%	6.0%	9.4%	30.5%	10.6%
2007-2008	6.3%	5.4%	5.5%	49.0%	7.5%
2008-2009	10.3%	6.6%	13.5%	14.3%	13.8%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

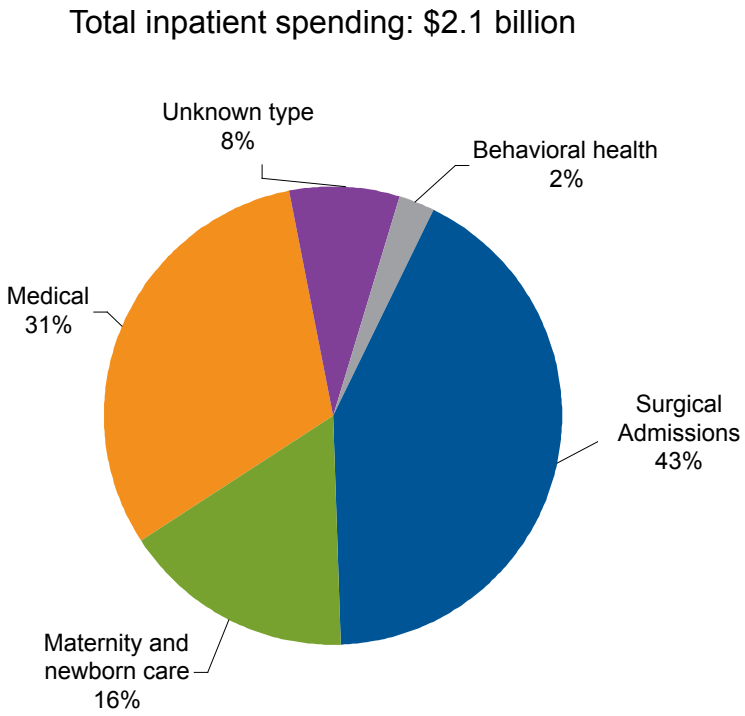
Notes: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. Payments for missing or unknown DRGs are included in the all-stay total but not shown separately.

[a] All stays include DRGs that were missing or unknown. These represented approximately eight percent of inpatient payments each year.

Spending by type of admission

- Approximately 43 percent of privately insured inpatient spending in 2009 was for surgical admissions (Figure H). Medical admissions accounted for at least 31 percent of inpatient spending, and maternity and newborn care accounted for at least 16 percent. Admissions for behavioral health accounted for about two percent.
- Inpatient spending per member year grew at an average annual rate of eight percent from 2007 to 2009 (Table 3). Spending per member year for surgical admissions, the largest component of privately insured inpatient spending, grew relatively slower (six percent per year), and faster for maternity admissions (11 percent) and medical admissions (nine percent). By far, behavioral health was the fastest growing category of privately insured inpatient spending, although it remained the smallest category. Spending per member year for inpatient behavioral health admissions increased 49 percent from 2007 to 2008, and 14 percent from 2008 to 2009.

Figure H: Distribution of Spending for Privately Insured Inpatient Hospital Care by Type of Admission, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

- Medical admissions accounted for a larger share of total spending growth for privately insured inpatient care from 2007 to 2009 (37 percent) than any other category of admissions (Table 4). This reflected both the large share of total inpatient spending associated with medical admissions and relatively fast rate of growth in spending for medical admissions over the three-year period, especially from 2008 to 2009, when medical admissions accounted for nearly half (45 percent) of the total increase in inpatient spending. Surgical and maternity admissions each accounted for about one-quarter of the growth in inpatient spending (respectively, 20 percent and 24 percent) from 2008 to 2009, while behavioral health admissions accounted for four percent.[13]

Table 4: Distribution of Change in Privately Insured Spending for Inpatient Care by Type of Admission, 2007-2009

		Type of admission			
	All stays[a]	Surgical	Medical	Behavioral health	Maternity and newborn care
Change in spending ($ millions)					
2007-2009	$219.5	$57.7	$81.2	$19.3	$49.4
2007-2008	$88.7	$31.5	$22.3	$14.6	$17.5
2008-2009	$130.7	$26.2	$58.9	$4.8	$31.9
Percent of change in spending					
2007-2009	100.0%	26.3%	37.0%	8.8%	22.5%
2007-2008	100.0%	35.5%	25.1%	16.4%	19.8%
2008-2009	100.0%	20.0%	45.1%	3.6%	24.4%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

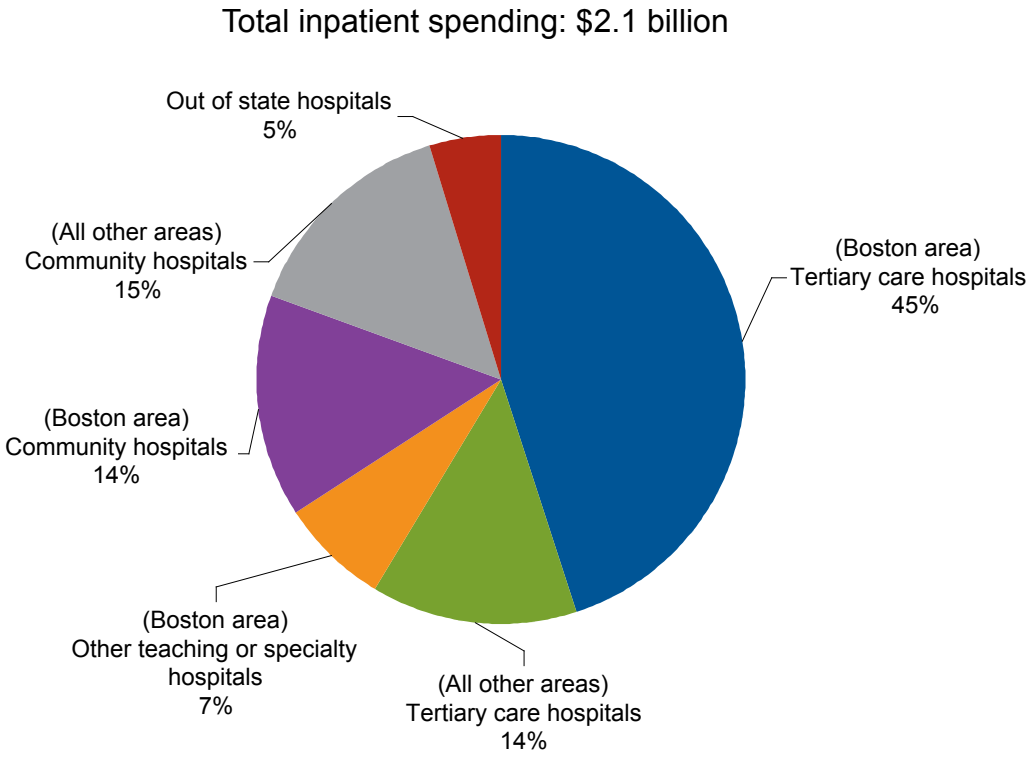
[a] All stays include DRGs that were missing or unknown. These represented approximately 8 percent of inpatient payments each year.

[13] Inpatient stays classified as "unknown" because of missing data are included in the total and account for approximately 8 percent of inpatient payments each year.

Spending by type and location of hospital[14]

- In 2009, 66 percent of total inpatient spending was for care obtained in tertiary care, specialty, and teaching hospitals, in the Boston metro area (52 percent) or elsewhere in Massachusetts (14 percent) (Figure I). Just 29 percent of inpatient spending was for care obtained in community hospitals.[15]

Figure I: Distribution of Privately Insured Spending for Inpatient Care by Type and Location of Hospital, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

[14] See *Technical Appendix* for a listing of hospitals included in each category and for hospitals located in the Boston metro area.

[15] An earlier DHCFP study showed that the proportion of discharges at teaching hospitals versus community hospitals was significantly higher in Massachusetts compared to the rest of the nation. See: Division of Health Care Finance and Policy, Health Care Costs Trends: Part I: The Massachusetts Health Care System in Context: Costs, Structure, and Methods used by Private Insurers to Pay Providers, February 2010. Available at: www.mass.gov/dhcfp/costtrends, accessed 6/5/2011. Percents do not sum to 100 due to rounding.

- Very little change occurred in the distribution of inpatient spending across types of hospitals from 2007 to 2009 (Table 5). As a group, community hospitals showed small gains in their share of total spending for privately insured surgical and behavioral health admissions (one to two percentage points), but accounted for a slightly smaller share of spending for maternity admissions (by about two percentage points) by 2009.

Table 5: Spending for Privately Insured Inpatient Hospital Care by Type of Admission and Hospital, 2009 ($ millions)

		Type of admission			
	All stays[a]	Surgical	Medical	Behavioral health	Maternity and newborn care
2007					
All Hospitals	$1,925.0	$846.6	$588.9	$31.3	$303.9
Percent of total:					
Tertiary care hospitals	58.3%	63.7%	53.2%	37.1%	53.3%
Other teaching or specialty hospitals	8.2%	7.9%	8.8%	6.2%	8.6%
Community hospitals	28.6%	24.4%	31.6%	39.3%	34.7%
2008					
All Hospitals	$2,013.8	$878.1	$611.1	$45.8	$321.4
Percent of total:					
Tertiary care hospitals	58.6%	64.7%	53.4%	36.9%	52.2%
Other teaching or specialty hospitals	7.7%	6.3%	8.8%	10.3%	9.6%
Community hospitals	28.8%	24.6%	32.3%	40.0%	33.1%
2009					
All Hospitals	$2,144.5	$904.3	$670.1	$50.6	$353.3
Percent of total:					
Tertiary care hospitals	58.7%	64.5%	53.5%	37.0%	55.4%
Other teaching or specialty hospitals	7.2%	5.6%	8.7%	8.4%	8.4%
Community hospitals	29.5%	26.0%	32.5%	42.4%	32.5%

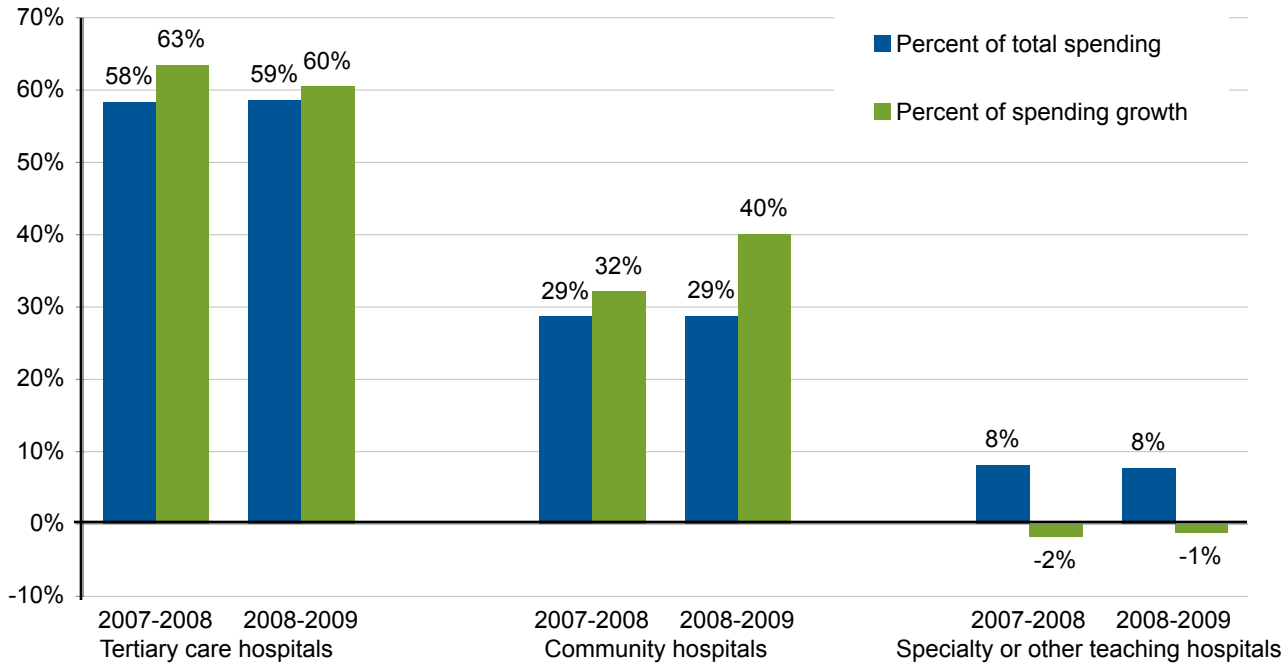
Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

[a] All stays include DRGs that were missing or unknown. These represented approximately 8 percent of inpatient payments each year.

- Consistent with their large share of total spending for inpatient care, tertiary care hospitals accounted for 60 to 63 percent of the total increase in spending for privately insured inpatient services from 2007 to 2009 (Figure J). However, the gains that community hospitals made were apparent: while community hospitals accounted for approximately 29 percent of total spending for privately insured inpatient care over this period, they accounted for 32 percent of spending growth from 2007 to 2008, and 40 percent of spending growth from 2008 to 2009. Total spending for care in specialty and other teaching hospitals declined in both 2008 and 2009.

Figure J: Market Share and Percent of Growth in Spending for Privately Insured Inpatient Care by Type of Hospital, 2007-2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

- Spending for inpatient care in the Boston metro area increased faster than in other areas of the Commonwealth. From 2007 to 2009, inpatient spending increased at an average annual rate of six percent in the Boston metro area, compared with an average increase of 4.5 percent in other areas (Table 6). The faster growth of spending in the Boston metro area hospitals reflected faster spending growth for care in both tertiary care hospitals (six percent in the Boston metro area compared to five percent elsewhere) and community hospitals (10 percent in the Boston metro area compared to four percent elsewhere).

Table 6: Spending for Privately Insured Inpatient Hospital Care by Type and Location of Hospital, 2007-2009 ($ millions)

	2007	2008	2009	Percent change: 2007-2008	Percent change: 2008-2009	Average annual change 2007-2009
All Hospitals	**$1,925**	**$2,014**	**$2,144**	**4.6%**	**6.5%**	**5.5%**
Metro Boston area	$1,270	$1,331	$1,430	4.9%	7.4%	6.1%
Tertiary care hospitals	$854	$900	$962	5.4%	6.9%	6.2%
Other teaching or specialty hospitals	$157	$156	$154	-1.0%	-1.1%	-1.0%
Community hospitals	$258	$275	$314	6.5%	14.0%	10.2%
All other areas	$562	$583	$614	3.8%	5.3%	4.5%
Tertiary care hospitals	$269	$279	$296	3.7%	6.1%	4.9%
Community hospitals	$293	$305	$319	4.0%	4.5%	4.2%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

Components of change in inpatient spending

- Most of the growth in spending per member year for inpatient care was related to increases in spending per admission and spending per inpatient day. Across all inpatient service categories,[16] spending per admission increased at an average rate of nearly seven percent per year from 2007 to 2009 while the number of admissions per member increased less than two percent per year (Table 7). For example:
  - Among surgical admissions, which accounted for almost half of inpatient spending, spending per admission from 2007 to 2009 grew twice as fast (on average 4.2 percent per year) as admissions per member (two percent).
  - Spending per admission for medical and maternity also grew more quickly than growth in admissions. Spending per medical admission grew at an average rate of eight percent per year from 2007 to 2009, while the rate of admissions per member year grew less than two percent per year (Table 7). Similarly, spending per maternity admission grew nearly 12 percent per year, while the rate of admissions changed relatively little or actually declined.

[16] These categories include surgical, medical, behavioral health, and maternity and newborn care.

Table 7: Change in the Prevalence, Length, and Cost of Privately Insured Inpatient Stays by Type of Admission, 2007-2009

	Inpatient Spending per Member Year	Spending per Admission	Admissions per 1,000 Member Years	Number of Days per Admission	Spending per Day
Total inpatient hospital services[a]					
2009	$776	$10,988	69.3	4.1	$2,712
Average annual change, 2007-2009	8.3%	6.8%	1.7%	0.5%	6.2%
2007-2008	6.3%	7.3%	-0.6%	1.4%	5.8%
2008-2009	10.3%	6.3%	4.0%	-0.4%	6.7%
Medical					
2009	$243	$9,952	23.8	3.9	$2,546
Average annual change, 2007-2009	9.4%	7.9%	1.8%	-1.5%	9.6%
2007-2008	5.5%	6.6%	-0.5%	-1.1%	7.8%
2008-2009	13.5%	9.4%	4.1%	-1.9%	11.5%
Surgical					
2009	$327	$20,073	15.9	4.0	$5,045
Average annual change, 2007-2009	6.0%	4.2%	2.0%	-2.5%	6.8%
2007-2008	5.4%	5.6%	0.1%	-2.5%	8.3%
2008-2009	6.6%	2.9%	4.0%	-2.4%	5.4%
Behavioral health					
2009	$18	$6,249	2.9	7.0	$888
Average annual change, 2007-2009	30.5%	11.2%	17.7%	5.1%	5.9%
2007-2008	49.0%	16.6%	28.2%	10.3%	5.7%
2008-2009	14.3%	6.1%	8.0%	0.1%	6.0%
Maternity and newborn care					
2009	$128	$6,256	20.1	3.8	$1,660
Average annual change, 2007-2009	10.6%	11.7%	-0.8%	1.8%	9.7%
2007-2008	7.5%	11.9%	-3.9%	2.8%	8.9%
2008-2009	13.8%	11.5%	2.4%	0.8%	10.6%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates are facility payments for care provided in acute care hospitals. Claims with missing or unknown DRGs are excluded. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. The calculation of average length of stay excludes data for one carrier for which the discharge date was missing on all inpatient records. The number of admissions and days were adjusted for missing data.

[a] Total inpatient hospital services include DRGs that were missing or unknown. These represented approximately eight percent of inpatient payments each year.

- The change in spending per member year for behavioral health admissions, unlike other types of admissions, related more to growth in the volume of care —both admissions per member and days per admission—than to growth in spending per admission, although both components grew significantly. From 2007 to 2009, behavioral health admissions per member grew at an average rate of 18 percent per year, while spending per admission grew 11 percent per year. However, behavioral health admissions remained a relatively small share of total spending for inpatient care.
- The high growth in spending per member year for care in tertiary care or community hospitals was due primarily to an increase in spending per admission to these hospitals. Specifically:
  - From 2007 to 2009, spending per admission to tertiary care hospitals grew at an average rate of six percent per year—about three times as fast as growth in the rate of admissions per member year (two percent) (Table 8). Higher spending per admission drove most of the growth in spending for care in Boston metro area tertiary care hospitals, and all of the growth in spending for care in tertiary care hospitals outside the Boston metro area.
  - Similarly, from 2007 to 2009, spending per admission to Boston metro area community hospitals grew at an average rate of 10 percent per year, while admissions per 1,000 member years grew at an average rate of four percent per year (Table 8). Among community hospitals outside the Boston metro area, spending per admission increased about nine percent per year, accounting for all of the growth in spending per member year for care at these hospitals.
- In most hospitals, the number of days per privately insured admission changed very little from 2007 to 2009, thus the growth in spending per admission indicates significant increases in spending per inpatient day. Average growth in spending per inpatient day from 2007 to 2009 ranged from four to eight percent per year for care in tertiary care hospitals, and nine to 10 percent per year for care in community hospitals (Table 8).

Table 8: Components of Change in Spending per Member Year for Privately Insured Hospital Inpatient Care by Hospital Teaching Status and Metro Boston Location, 2007-2009

	Inpatient Spending per Member Year[a]	Spending per Admission	Admissions per 1,000 Member Years[a]	Number of Days per Admission	Spending per Inpatient Day
Tertiary care hospitals					
2009	$446	$13,484	33.1	4.5	$3,018
Average annual change, 2007-2009	8.9%	6.3%	2.4%	0.9%	5.3%
2007-2008	7.0%	6.7%	0.3%	2.2%	4.4%
2008-2009	10.8%	5.9%	4.6%	-0.3%	6.2%
Metro Boston tertiary care hospitals					
2009	$339	$14,331	23.7	4.6	$3,100
Average annual change, 2007-2009	9.3%	5.2%	3.8%	0.9%	4.4%
2007-2008	7.5%	5.1%	2.3%	1.9%	3.1%
2008-2009	11.1%	5.4%	5.4%	-0.2%	5.6%
Other-area tertiary care hospitals					
2009	$107	$11,348	9.4	4.1	$2,784
Average annual change, 2007-2009	7.6%	8.7%	-1.0%	0.8%	7.8%
2007-2008	5.5%	10.3%	-4.3%	2.2%	7.9%
2008-2009	9.7%	7.1%	2.5%	-0.7%	7.8%
Specialty and other teaching hospitals					
2009	$55	$17,353	3.1	4.8	$3,602
Average annual change, 2007-2009	2.4%	-1.5%	3.9%	-4.1%	2.7%
2007-2008	1.8%	-3.3%	5.3%	-4.8%	1.6%
2008-2009	2.9%	0.4%	2.6%	-3.4%	3.8%
Community hospitals					
2009	$225	$7,331	30.7	3.4	$2,142
Average annual change, 2007-2009	10.1%	9.4%	0.6%	0.0%	9.4%
2007-2008	7.0%	9.1%	-1.9%	1.4%	7.6%
2008-2009	13.3%	9.8%	3.2%	-1.4%	11.3%
Metro Boston community hospitals					
2009	$110	$7,980	13.8	3.5	$2,286
Average annual change, 2007-2009	13.6%	9.6%	3.7%	-0.4%	10.0%
2007-2008	8.4%	9.6%	-1.1%	1.4%	8.1%
2008-2009	19.1%	9.5%	8.7%	-2.2%	12.0%
Other-area community hospitals					
2009	$115	$6,799	16.9	3.4	$2,019
Average annual change, 2007-2009	7.0%	8.9%	-1.7%	0.2%	8.7%
2007-2008	5.8%	8.5%	-2.4%	1.3%	7.1%
2008-2009	8.2%	9.3%	-0.9%	-0.9%	10.2%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates are facility payments for care provided at acute inpatient facilities. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. The calculation of average length of stay excludes data for one carrier for which the discharge date was missing on all inpatient records. Out-of-state hospitals, as well as a small number of in-state facilities whose location or teaching status could not be determined, are included in the total but not shown separately. The number of admissions and days were adjusted for missing data.

[a] Because member location is unknown, total member months are used in per-member-year calculations across regions.

- Compared with the growth in spending per admission and spending per day for care in either tertiary care or community hospitals, the cost of privately insured care in specialty or other teaching hospitals (in the Boston metro area) was stable. The volume of care in these hospitals grew at an average rate of four percent per year, but spending per admission fell 3.3 percent from 2007 to 2008, and showed little growth from 2008 to 2009. Growth in spending per inpatient day in these hospitals averaged three percent per year, reflecting consecutively shorter lengths of stay in both years.
- Several factors could explain growth in spending per admission and spending per day from 2007 to 2009, including changes in price, service mix, and increased use of higher priced providers. To estimate the separate impacts of these factors as well as changes in service volume, a fixed market basket of inpatient services that occurred consistently each year was analyzed.[17] This analysis indicated that higher prices drove virtually all of the increase in spending for privately insured inpatient care from 2007 to 2009. From 2007 to 2008, higher prices alone would have driven a 6.5 percentage point increase in inpatient spending compared with the actual increase of 5.7 percent, but a decline in the number of admissions partly offset the impact of higher prices (Table 9). From 2008 to 2009, higher prices drove 88 percent of the increase in total inpatient spending (six percentage points of the seven percent total increase). In both years, changes in the distribution of inpatient care among hospitals drove small increases in inpatient spending (about four percent of the total change both years), while changes in inpatient service mix drove 15 to 18 percent of inpatient spending growth.

Table 9: Drivers of Change in Spending for Privately Insured Inpatient Care by Type of Hospital, 2007-2009

	Change in total spending	Change in total spending due to change in:			
		Pure price	Distribution of care across hospitals and locations	Number of admissions	Service mix
2007-2008					
All market basket inpatient care ($ millions)	$74.8	$85.0	$3.3	-$27.2	$13.8
Percent of total change	100.0%	113.6%	4.4%	-36.3%	18.4%
Contribution to total change (percentage points)	5.7%	6.5%	0.2%	-2.1%	1.0%
2008-2009					
All market basket inpatient care ($ millions)	$101.0	$88.7	$4.2	-$6.9	$15.0
Percent of total change	100.0%	87.8%	4.2%	-6.8%	14.9%
Contribution to total change (percentage points)	7.3%	6.4%	0.3%	-0.5%	1.1%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for care provided in acute care hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

[17] This analysis is comparable to the development of a Laspeyres price index. This analysis—conducted separately for market baskets of inpatient care, outpatient hospital care, and professional services—is explained in detail in the *Technical Appendix*.

C. Hospital Outpatient Services

Among the carriers represented in this analysis, total spending for outpatient hospital care was $3.2 billion in 2009, or $1,172 per member year. Spending per member year grew 10 percent from 2007 to 2008, and 13 percent from 2008 to 2009 (Table 10).

Table 10: Spending for Privately Insured Hospital Outpatient Care and Spending per Member Year, by Type and Location of Hospital, 2007-2009

		Type of hospital				
	All hospitals	Boston-area tertiary care hospitals	Other tertiary care hospitals	Boston-area community hospitals	Other community hospitals	Boston-area specialty hospitals
Total payments ($ millions)						
2007	$2,732.1	$891.2	$374.2	$400.8	$673.8	$269.6
2008	$2,961.6	$984.3	$399.3	$431.0	$711.9	$314.4
2009	$3,236.5	$1,102.5	$441.1	$479.7	$741.3	$352.4
Average annual change, 2007-2009	8.8%	11.2%	8.6%	9.4%	4.9%	14.3%
2007-2008	8.4%	10.5%	6.7%	7.5%	5.7%	16.6%
2008-2009	9.3%	12.0%	10.5%	11.3%	4.1%	12.1%
Spending per member year						
2007	$940	$307	$129	$138	$232	$93
2008	$1,035	$344	$140	$151	$249	$110
2009	$1,172	$399	$160	$174	$268	$128
Average annual change, 2007-2009	11.7%	14.1%	11.4%	12.2%	7.6%	17.3%
2007-2008	10.2%	12.3%	8.5%	9.3%	7.4%	18.5%
2008-2009	13.2%	16.0%	14.4%	15.2%	7.8%	16.1%

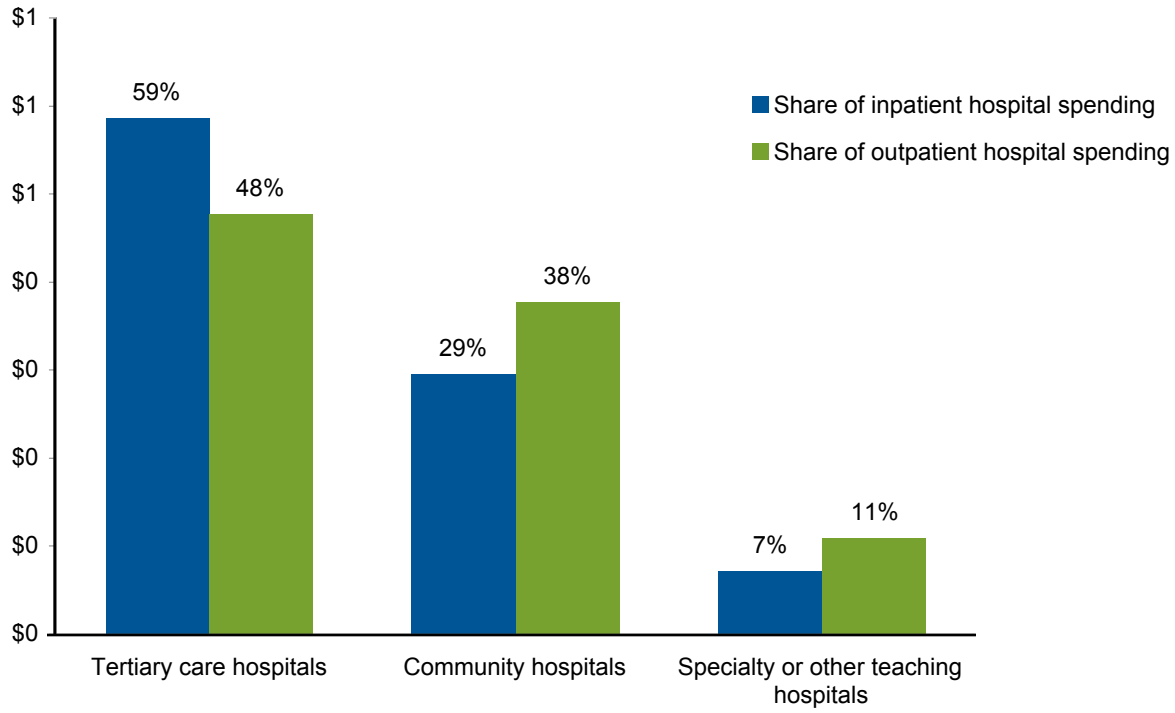
Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates are facility payments for outpatient care. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. Payments to out-of-state hospitals are included in totals but not shown separately.

Spending by type and location of hospital

- In 2009, just less than half (48 percent) of spending for privately insured outpatient hospital care was associated with care obtained in tertiary care hospitals, compared with 59 percent of spending for privately insured inpatient care (Figure K). Compared with the distribution of spending for inpatient care, a greater proportion of spending for outpatient care occurred in community hospitals (38 percent) and specialty or other teaching hospitals (11 percent).

Figure K: Share of Privately-Insured Inpatient and Outpatient Spending by Type of Hospital, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Expenditures for hospital inpatient and outpatient departments include only facility payments. Payments to out-of-state hospitals are excluded, as are payments for a small number of in-state facilities for which either location or teaching status was unidentified. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

- Spending per member year for hospital outpatient care grew much faster from 2008 to 2009 (13 percent) than from 2007 to 2008 (10 percent). This pattern of increased growth in 2009 was evident across most hospitals, and was especially pronounced in tertiary care hospitals and in Boston metro area community hospitals. From 2008 to 2009, spending per member year grew 16 percent for outpatient services obtained in Boston metro area tertiary care hospitals and 14 percent for outpatient care in tertiary care hospitals in other regions (Table 10). Spending per member year for outpatient care in Boston metro area community hospitals grew 15 percent, compared with less than eight percent growth in community hospitals located in other regions. The growth in spending per member year for outpatient care in Boston metro area specialty hospitals was higher in both years than for any other type of hospital, averaging 17 percent per year.
- Boston metro area hospitals accounted for 74 percent of the growth in spending for hospital outpatient care statewide from 2007 to 2009, and about the same proportion of growth in each year (Table 11). More than half of this spending growth (57 percent, or 42 of the 74 percentage points) was associated with tertiary care hospitals in the Boston metro area.
- Tertiary care hospitals in other regions of the state accounted for a much larger share of total spending growth from 2008 to 2009 (15 percent) than from 2007 to 2008 (11 percent) (Table 11). Conversely, community hospitals outside the Boston metro area accounted for a much smaller share of spending growth from 2008 to 2009 (11 percent), compared with the prior year (17 percent).

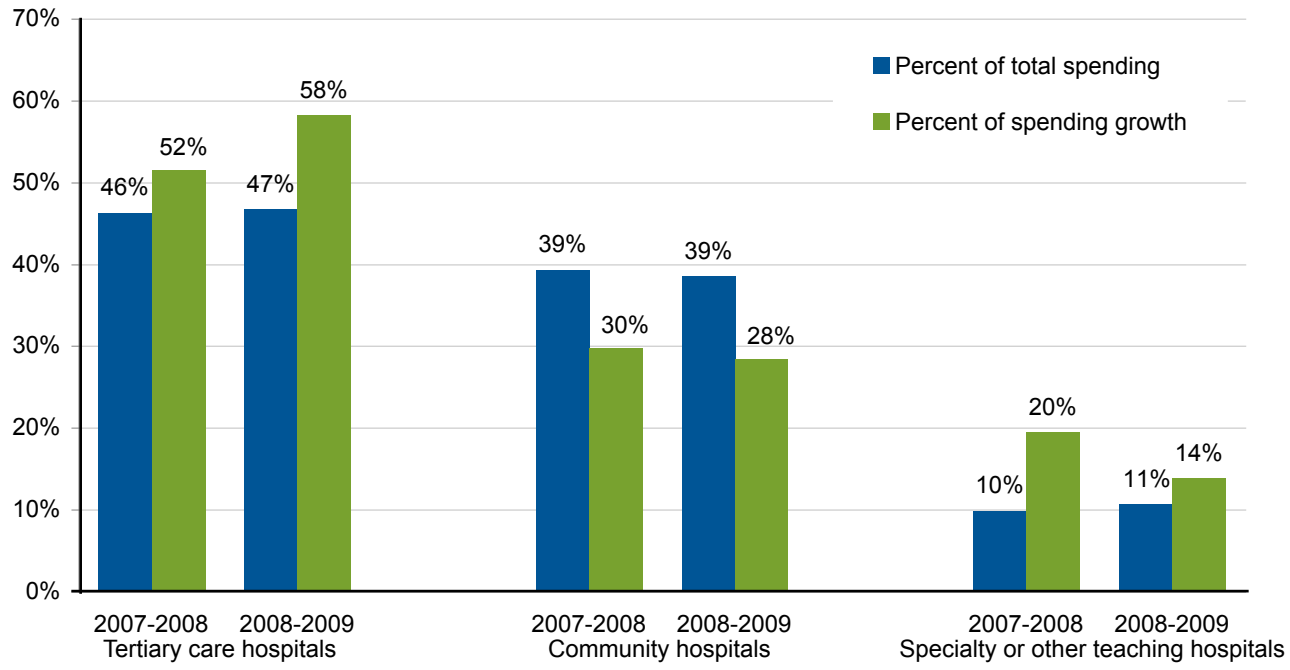
Table 11: Distribution of Change in Total Spending for Outpatient Care by Hospital Type and Location, 2007-2009

	Summary: 2007-2009		2007-2008		2008-2009	
	Spending change	Percent of spending change	Spending change	Percent of spending change	Spending change	Percent of spending change
All outpatient hospital services	$504.4	100.0%	$229.5	100.0%	$274.8	100.0%
Boston area	$373.1	74.0%	$168.2	73.3%	$204.9	74.6%
Tertiary care hospitals	$211.4	41.9%	$93.2	40.6%	$118.2	43.0%
Other specialty hospitals	$82.8	16.4%	$44.8	19.5%	$38.0	13.8%
Community hospitals	$78.9	15.6%	$30.2	13.2%	$48.7	17.7%
All other areas	$134.4	26.7%	$63.2	27.5%	$71.3	25.9%
Tertiary care hospitals	$66.9	13.3%	$25.1	10.9%	$41.8	15.2%
Community hospitals	$67.5	13.4%	$38.1	16.6%	$29.4	10.7%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for outpatient care. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. Detail may not add to the total, as payments to out-of-state hospitals are included in totals but not shown separately.

- Spending for privately insured outpatient care in tertiary care hospitals and in specialty or other teaching hospitals contributed to growth in these hospitals' collective market share (that is, their share of total privately insured outpatient spending) in 2008 and 2009. Tertiary care hospitals accounted for 47 percent of total spending for privately insured outpatient hospital care, but 58 percent of the growth in spending from 2008 to 2009 (Figure L). Specialty and other teaching hospitals accounted for 11 percent of total spending, but 14 percent of the growth in spending from 2008 to 2009. Conversely, community hospitals accounted for about 39 percent of total outpatient spending, but for 28 percent of spending growth from 2008 to 2009.

Figure L: Share of Total Privately Insured Spending for Hospital Outpatient Care and Percent of Growth in Spending by Type of Hospital, 2007-2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Data are facility payments for care provided in *acute care* hospitals. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded.

Components of change in spending for hospital outpatient services

- Growth in spending per service accounted for most of the total growth in spending per member year for hospital outpatient services from 2007 to 2009. Over that period, spending per service grew twice as fast (averaging eight percent per year) as the number of outpatient services used per member year (three percent) (Table 12).

Table 12: Changes in the Average Number and Price of Privately Insured Outpatient Hospital Services by Type and Location of Hospital, 2007-2009

	Spending per member year[a]	Average spending per service	Number of services per member year[a]
Total hospital outpatient services			
2009	$1,172	$446	2.6
Average annual change, 2007-2009	11.7%	8.0%	3.4%
2007-2008	10.2%	6.7%	3.3%
2008-2009	13.2%	9.2%	3.6%
Boston area tertiary care hospitals			
2009	$399	$476	0.8
Average annual change, 2007-2009	14.1%	7.9%	5.8%
2007-2008	12.3%	5.8%	6.1%
2008-2009	16.0%	10.0%	5.4%
Other-area tertiary care hospitals			
2009	$160	$412	0.4
Average annual change, 2007-2009	11.4%	6.5%	4.6%
2007-2008	8.5%	4.9%	3.4%
2008-2009	14.4%	8.0%	5.9%
Boston area community hospitals			
2009	$174	$405	0.4
Average annual change, 2007-2009	12.2%	9.4%	2.6%
2007-2008	9.3%	8.3%	1.0%
2008-2009	15.2%	10.6%	4.2%
Other-area community hospitals			
2009	$268	$375	0.7
Average annual change, 2007-2009	7.6%	5.5%	2.0%
2007-2008	7.4%	4.1%	3.2%
2008-2009	7.8%	7.0%	0.8%
Boston area specialty and other teaching hospitals			
2009	$128	$762	0.2
Average annual change, 2007-2009	17.3%	9.6%	7.0%
2007-2008	18.5%	9.5%	8.3%
2008-2009	16.1%	9.8%	5.8%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for outpatient care. Payments for capitated services were included when attributable to specific claims. Other capitation payments and payments not reflected in claims data are excluded. Payments to hospitals outside Massachusetts are included in totals but otherwise not shown. The number of service units corresponds to the number of times the service or procedure was billed; one claim may include multiple service units (e.g. administered units of an injectable drug). A change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.
[a] Because member location is unknown, total member months are used in per-member-year calculations across regions.

- From 2007-2009, spending per service for outpatient care in the Boston metro area grew faster than for outpatient care in hospitals in other areas. From 2008 to 2009, average spending per service grew 10 to 11 percent in Boston metro area tertiary, community, and specialty and other teaching hospitals—compared with growth of seven to eight percent for community or tertiary care hospitals in other areas.
- A market basket of outpatient services that occurred in all three years was created to determine the impacts on spending growth associated with changes in price, the distribution of care across hospitals, volume, and service mix. Increases in prices accounted for about half of the growth in spending for privately insured hospital outpatient care from 2007 to 2008, and essentially all of the growth from 2008 to 2009 (Table 13). An increase in the volume of services contributed to spending growth from 2007 to 2008 (accounting for about 42 percent of total growth), but contributed relatively little to spending growth from 2008 to 2009. Neither changes in the distribution of care across hospitals nor service mix contributed significantly to spending growth, and in fact, the lower complexity of service mix in 2009 partly offset the impact of high growth in pure prices from 2008 to 2009.

Table 13: Drivers of Change in Total Spending for Privately Insured Hospital Outpatient Care, 2007-2009

	Change in spending	Change in spending due to the change in:			
		Pure price	Distribution of care across hospitals and locations	Number of service units	Service mix
2007-2008					
All market basket outpatient hospital care ($ millions)	$214.4	$116.4	$2.5	$90.5	$5.0
Percent of total change	100.0%	54.3%	1.1%	42.2%	2.3%
Contribution to total change (percentage points)	9.4%	5.1%	0.1%	3.9%	0.2%
2008-2009					
All market basket outpatient hospital care ($ millions)	$115.3	$137.0	$6.4	$3.4	-$31.5
Percent of total change	100.0%	118.8%	5.6%	3.0%	-27.3%
Contribution to total change (percentage points)	4.6%	5.5%	0.3%	0.1%	-1.3%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates are facility payments for outpatient care. The number of service units corresponds to the number of times the service or procedure was billed; one claim may include multiple service units (e.g. administered units of an injectable drug). A change in the number of service units may reflect change in the number of insured member years as well as the number of service units per member year.

D. Professional Services

Among the carriers represented in this analysis, spending for physician and other professional services totaled $4.4 billion in 2009, or $1,576 per member year (Table 14). Spending per member year for privately insured professional services grew, on average, more than 10 percent per year from 2007 to 2009.

Table 14: Spending for Privately Insured Professional Services and Spending per Member Year by Type of Provider, 2007-2009

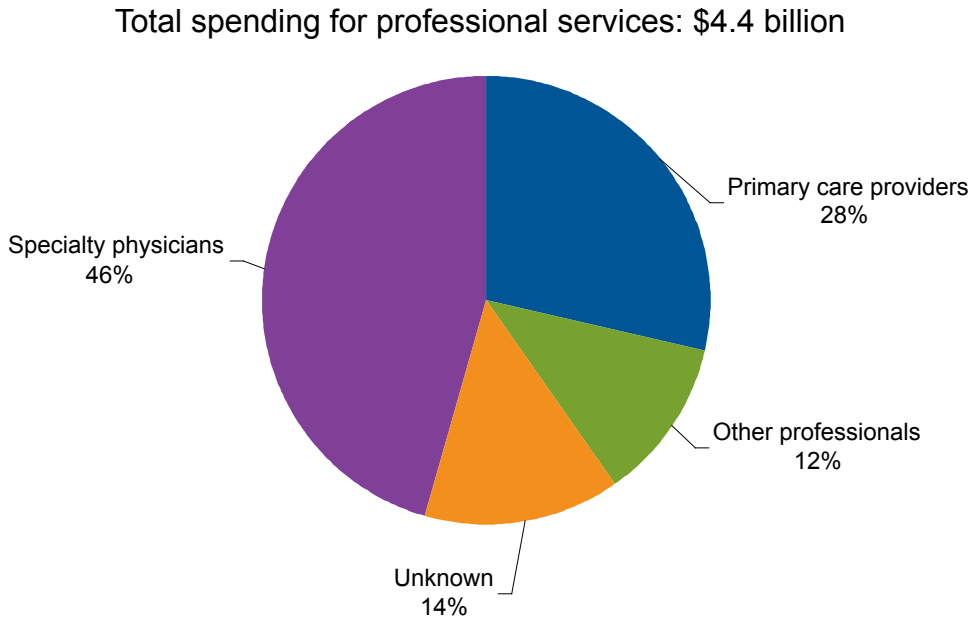
		By Type of Professional		
	All Services	Primary Care Physician	Specialty Physician	Other Professional
Total spending ($ million)				
2007	$3,753	$1,098	$1,757	$417
2008	$4,032	$1,191	$1,867	$473
2009	$4,351	$1,242	$1,986	$513
Average annual change,				
2007-2009	7.7%	6.4%	6.3%	11.0%
2007-2008	7.4%	8.5%	6.3%	13.5%
2008-2009	7.9%	4.3%	6.3%	8.4%
Spending per member year				
2007	$1,291	$378	$604	$143
2008	$1,410	$416	$653	$165
2009	$1,576	$450	$719	$186
Average annual change,				
2007-2009	10.5%	9.1%	9.1%	13.8%
2007-2008	9.2%	10.3%	8.0%	15.4%
2008-2009	11.8%	8.0%	10.1%	12.3%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates include capitated claims but exclude capitation adjustments and other payments not captured in the claims data. Primary care providers include general practitioners, family practitioners, internists, OB/GYNs, pediatricians, and geriatricians, as well as physicians classified as practicing public health and general preventive medicine and adolescent medicine, and nurse practitioners. Specialists include all other MDs. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and other identified health professionals. Payments for professional services associated with anomalous or missing specialty codes are included in the all-service total but not shown separately.

Spending by type of provider

- Nearly half of total spending for privately insured professional services in 2009 (46 percent) was for care provided by specialty physicians (Figure M). Primary care accounted for 28 percent of total spending, and payments to other non-physician professionals accounted for 12 percent.
- The growth in spending per member year from 2007 to 2009 reflected substantial increases in spending for specialty and primary care (averaging nine percent per year) and still faster growth in spending for non-physician professional services (averaging 14 percent per year) (Table 14).

Figure M: Distribution of Spending for Privately Insured Professional Services by Type of Provider, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates include capitated claims but exclude capitation adjustments and other payments not captured in the claims data. Primary care providers include general practitioners, family practitioners, internists, OB/GYNs, pediatricians, and geriatricians, as well as physicians classified as practicing public health and general preventive medicine and adolescent medicine, and nurse practitioners. Specialists include all other MDs. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and other identified health professionals. Unknown providers include claims with anomalous or missing specialty codes.

- The distribution of spending across physician and other non-physician professionals and location of services was stable from 2007 to 2008. In 2009, nearly two-thirds of spending for professional services (62 percent) was associated with care provided in an office or clinic, typically by a primary care provider or specialty physician (Table 15). Professional charges for care provided in a hospital outpatient department accounted for 21 percent of spending for professional services.
- Both primary care providers and specialty physicians billed for care provided in inpatient settings. These payments were in addition to the facility charges paid to hospitals for an inpatient stay. In 2009, professional services for care provided to residents while hospitalized accounted for 12 percent of payments to primary care providers ($52 per member year) and 15 percent of payments to specialty physicians ($106 per member year) (Table 15).

Table 15: Spending per Member Year for Privately Insured Professional Services by Type of Provider and Location of Service, 2009

		Type of provider		
	All services	Primary care providers	Specialty physicians	Other professionals
2009				
Spending per member year				
Total spending per member year	$1,576	$450	$719	$186
Office or clinic	$973	$346	$351	$155
Outpatient hospital	$337	$38	$236	$14
Inpatient hospital	$196	$52	$106	$10
All other locations	$69	$13	$26	$7
Percent of spending by type of provider				
Total	100.0%	28.5%	45.6%	11.8%
Office or clinic	100.0%	35.6%	36.1%	15.9%
Outpatient hospital	100.0%	11.3%	70.1%	4.0%
Inpatient hospital	100.0%	26.7%	54.1%	5.1%
All other locations	100.0%	18.6%	37.3%	10.7%
Percent of spending by location of service				
Total	100.0%	100.0%	100.0%	100.0%
Office or clinic	61.8%	77.0%	48.8%	83.3%
Outpatient hospital	21.4%	8.5%	32.8%	7.3%
Inpatient hospital	12.5%	11.6%	14.8%	5.4%
All other locations	4.4%	2.9%	3.6%	4.0%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates include capitated claims but exclude capitation adjustments and other payments not captured in the claims data. Primary care providers include general practitioners, family practitioners, internists, OB/GYNs, pediatricians, and geriatricians, as well as physicians classified as practicing public health and general preventive medicine and adolescent medicine, and nurse practitioners. Specialists include all other MDs. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and other identified health professionals. Payments for professional services associated with anomalous or missing specialty codes are included in the all-service total but not shown separately.

Components of change in spending for professional services

- The growth in spending for privately insured professional services from 2007 to 2009 related to growth in both the volume of services used per member year and average spending per service. From 2007 to 2009, the volume of services per member year increased at an average rate of six percent per year, while spending per service increased at about five percent per year (Table 16). Much of the growth in service volume related to strong growth in the use of other non-physician professionals, averaging more than 10 percent per year from 2007 to 2009. Conversely, much of the growth in average spending per service related to relatively strong growth in the per-service cost of primary care, averaging more than five percent per year from 2007 to 2009.

Table 16: Change in the Average Number and Price of Privately Insured Professional Services by Type of Provider, 2007-2009

	Spending per member year	Average spending per service	Number of services per member year
Total professional services			
2009	$1,540	$172	9.0
Average annual change, 2007-2009	10.9%	4.6%	6.0%
2007-2008	9.7%	6.1%	3.4%
2008-2009	12.1%	3.1%	8.7%
Primary care providers			
2009	$450	$148	2.9
Average annual change, 2007-2009	9.1%	5.5%	3.7%
2007-2008	10.3%	8.0%	2.6%
2008-2009	8.0%	3.2%	4.8%
Specialty physicians			
2009	$719	$213	3.3
Average annual change, 2007-2009	9.1%	4.4%	4.8%
2007-2008	8.0%	5.3%	2.9%
2008-2009	10.1%	3.5%	6.7%
Other professionals			
2009	$186	$124	1.5
Average annual change, 2007-2009	13.8%	3.4%	10.5%
2007-2008	15.4%	3.7%	11.4%
2008-2009	12.3%	3.1%	9.6%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates include only fee-for-service claims for known types of providers. Primary care providers include general practitioners, family practitioners, internists, OB/GYNs, pediatricians, and geriatricians, as well as physicians classified as practicing public health and general preventive medicine and adolescent medicine, and nurse practitioners. Specialists include all other MDs. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and other identified health professionals. Increases in the average expenditure per service may capture increases in the price per service unit, increases in the number of service units per claim line, or a change in the mix of services provided.

- The substantial growth that occurred in spending per member year for professional services provided in either an office or clinic or in hospital outpatient departments was related to growth in both average spending per service and the volume of services provided per member year. The volume of services provided in office, clinic, or hospital outpatient settings grew about four percent per year from 2007 to 2009 (Table 17). Spending per service grew somewhat faster for services provided in an office or clinic (averaging more than five percent per year) than for services provided in a hospital outpatient department (about four percent per year).

Table 17: Change in the Average Number of Privately Insured Professional Services by Location of Service and Average Spending per Service, 2007-2009

	Spending per member year	Average spending per service	Number of services per member year
Total professional services			
2009	$1,540	$172	9.0
Average annual change, 2007-2009	10.9%	4.6%	6.0%
2007-2008	9.7%	6.1%	3.4%
2008-2009	12.1%	3.1%	8.7%
Inpatient hospital			
2009	$193	$480	0.4
Average annual change, 2007-2009	6.3%	3.5%	2.7%
2007-2008	5.0%	2.4%	2.6%
2008-2009	7.5%	4.7%	2.8%
Outpatient hospital			
2009	$333	$190	1.8
Average annual change, 2007-2009	9.1%	4.4%	4.5%
2007-2008	8.8%	4.4%	4.2%
2008-2009	9.3%	4.3%	4.8%
Office or clinic			
2009	$950	$148	6.4
Average annual change, 2007-2009	10.0%	5.5%	4.2%
2007-2008	11.2%	7.8%	3.2%
2008-2009	8.8%	3.3%	5.3%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.

Note: Estimates include only fee-for-service claims for known types of providers. Primary care providers include general practitioners, family practitioners, internists, OB/GYNs, pediatricians, and geriatricians, as well as physicians classified as practicing public health and general preventive medicine and adolescent medicine, and nurse practitioners. Specialists include all other MDs. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and other identified health professionals. Increases in the average expenditure per service may capture increases in the price per service unit, increases in the number of service units per claim line, or a change in the mix of services provided.

- A market basket of standard professional services was developed to estimate the separate impacts of changes in price, volume, and service mix on growth in total spending for professional services. This analysis indicated that higher prices drove 77 percent of the growth in spending for privately insured professional services from 2007 to 2008, and 88 percent of the increase from 2008 to 2009 (Table 18). Change in the volume of services drove little of the growth in spending for professional services from 2007 to 2008, but lower service use offset the impact of price growth and more costly service mix from 2008 to 2009.

Table 18: Drivers of Change in Spending for Privately Insured Physician and Other Professional Services, 2007-2009

	Change in spending	Change in spending due to the change in:		
		Price	Number of service units	Service mix
2007-2008				
All market basket professional services ($ millions)	$164.6	$126.1	$25.3	$13.3
Percent of expenditure change	100.0%	76.6%	15.4%	8.1%
Contribution to total change (in percentage points)	5.9%	4.5%	0.9%	0.5%
2008-2009				
All market basket professional services ($ millions)	$162.8	$142.9	-$35.1	$55.1
Percent of expenditure change	100.0%	87.7%	-21.6%	33.8%
Contribution to total change (in percentage points)	5.5%	4.9%	-1.2%	1.9%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: Estimates include physician and other professional charges in any location of service. The change in the number of service units combines change in the number of insured member months, change in number of services per member per month, and change in the number of service units per service. Certain claims are excluded. See the *Technical Appendix* for details.

E. Prescription Drugs

Among the carriers in the analysis, spending for privately insured prescription drugs totaled $2.5 billion in 2009, or $890 per member year. Spending per member year increased at an average rate of less than two percent per year from 2007 to 2009 (Table 19).

Table 19: Spending on Privately Insured Prescription Drugs per Member Year, by Generic Status, 2007-2009

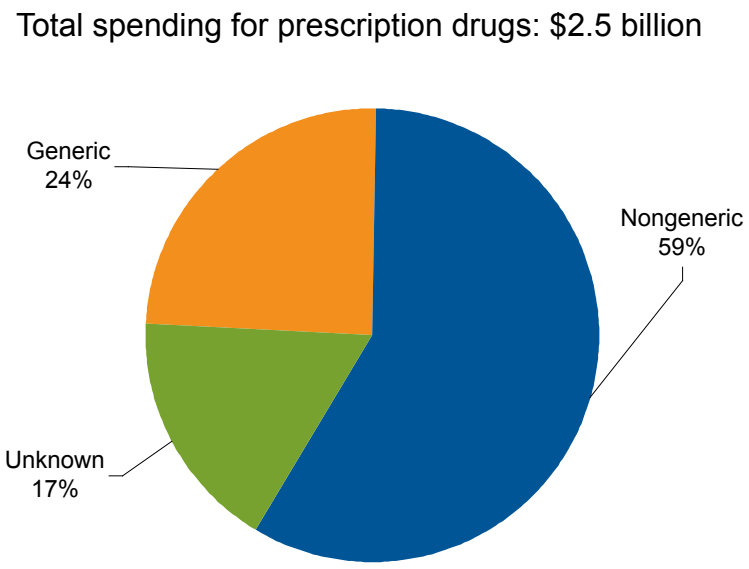
	All prescription drugs	Generic	Nongeneric	Unknown
Total spending ($ millions)				
2007	$2,501.1	$582.7	$1,508.9	$409.6
2008	$2,421.9	$576.2	$1,421.8	$424.0
2009	$2,457.3	$600.0	$1,437.0	$420.3
Average annual change, 2007-2009	-0.9%	1.5%	-2.4%	1.3%
2007-2008	-3.2%	-1.1%	-5.8%	3.5%
2008-2009	1.5%	4.1%	1.1%	-0.9%
Per member year spending				
2007	$860	$200	$519	$141
2008	$847	$201	$497	$148
2009	$890	$217	$520	$152
Average annual change, 2007-2009	1.7%	4.1%	0.1%	3.9%
2007-2008	-1.6%	0.5%	-4.2%	5.2%
2008-2009	5.1%	7.8%	4.7%	2.7%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents.
Note: Unknown prescription drug type reflects carve-out coverage for self-insured plans.

Spending for generic and non-generic drugs

- In 2009, generic prescriptions accounted for 24 percent of total spending for privately insured prescription drugs, and non-generics accounted for 59 percent (Figure N). When extrapolated to self-insured carve-out drug plans for which no data were available, non-generic drugs accounted for approximately 70 percent of all privately insured spending for prescription drugs each year from 2007 to 2009, while spending for generics accounted for approximately 30 percent.
- Prescription drug spending per member year fell from 2007 to 2008, but rebounded sharply from 2008 to 2009. From 2008 to 2009, spending per member year for privately insured prescription drugs increased five percent, reflecting an eight percent growth in spending for generic drugs and a five percent growth in spending for non-generics (Table 19).

Figure N: Distribution of Spending for Privately Insured Prescription Drugs by Generic Status, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents.
Note: Unknown prescription drug type reflects carve-out coverage for self-insured plans.

Components of change in spending for prescription drugs

- The decline in spending per member year for privately insured prescription drugs from 2007 to 2008 was driven by a six percent drop in the number of filled prescriptions per member year, while the average price per filled prescription grew three percent (Table 20). In contrast, the rebound in spending for privately insured prescription drugs from 2008 to 2009 was primarily driven by recovery in demand: the number of filled prescriptions per member year increased three percent from 2008 to 2009, while the average price per prescription increased two percent—reflecting changes in pure price, greater use of some higher-cost drugs, or both.
- From 2007 to 2009, the average price of generic prescription drugs grew less than two percent, compared with an average annual growth of more than 10 percent in the price of non-generics. From 2008 to 2009, the increase in spending for generic drugs related primarily to a seven percent increase in the number of filled prescriptions per member year, coupled with modest growth (one percent) in the average price per prescription. In contrast, the average price for non-generics grew more than nine percent, as the number of non-generic prescriptions filled per member year declined four percent.

Table 20: Change in the Average Number and Price of Privately Insured Prescription Drug Fills by Generic Status, 2007-2009

	Spending per member year	Average price per filled prescription	Number of filled prescriptions per member year
Generic and nongeneric			
2009	$738	$79	9.4
Average annual change, 2007-2009	1.3%	2.5%	-1.3%
2007-2008	-2.9%	3.0%	-5.7%
2008-2009	5.6%	2.1%	3.4%
Generic			
2009	$217	$32	6.9
Average annual change, 2007-2009	4.1%	1.7%	2.3%
2007-2008	0.5%	2.4%	-1.8%
2008-2009	7.8%	1.1%	6.7%
Non-generic			
2009	$520	$206	2.5
Average annual change, 2007-2009	0.1%	10.5%	-9.4%
2007-2008	-4.2%	11.5%	-14.1%
2008-2009	4.7%	9.5%	-4.4%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents.
Note: Estimates exclude spending for prescription drugs associated with carve-out coverage in self-insured employer plans.

F. Diagnostic Imaging Services

Payments for diagnostic imaging can be classified as spending for hospital inpatient care, outpatient services, or professional services. In this section, spending for diagnostic imaging was extracted from each of these service categories as well as from spending for all other services, including facilities that were not identified as acute care hospitals.

Diagnostic imaging services encompass a professional component for reading and interpreting the image and a technical component for the cost of equipment and conducting the scan. To the extent that diagnostic imaging is provided on an inpatient basis, the technical component is generally not paid separately from the inpatient charge for the entire stay, but the professional component is sometimes billed separately. To more completely understand total spending for diagnostic imaging, the estimates include professional charges for diagnostic imaging provided during an inpatient stay. However, to understand changes in spending per service, only diagnostic imaging paid on a fee-for-service basis and delivered in an office, clinic, or hospital outpatient department where prices were not imputed and both the professional and technical components of imaging services were billed were considered.

Three-fourths of total spending per member year for privately insured diagnostic imaging (78 percent) in 2009 was for services obtained on a fee-for-service basis, and in a hospital outpatient department, physician office, free-standing clinic, or other non-hospital setting.[18]

- Among the carriers in the analysis, spending for privately insured diagnostic imaging totaled $1.3 billion in 2009, or $475 per member year (Table 21). Spending per member year for diagnostic imaging grew at an average rate of 10 percent per year from 2007 to 2009.

[18] Consideration of diagnostic imaging delivered in only outpatient and non-hospital settings eliminates variation in spending due to changes between years in the proportion of charges where only the professional component is billed separately. The opportunity for this proportion to change was especially great in the private claims data, where the location of service code was missing on many imaging claims. Spending for diagnostic imaging where the location of service was either inpatient or unknown represented $95 (20 percent) of the $475 per member year for privately insured diagnostic imaging in 2009. Encounter claims representing services provided under capitation arrangements where carriers may have imputed payment amounts and which excluded any payments outside the claims system accounted for $8 (two percent) of the $475 per member year.

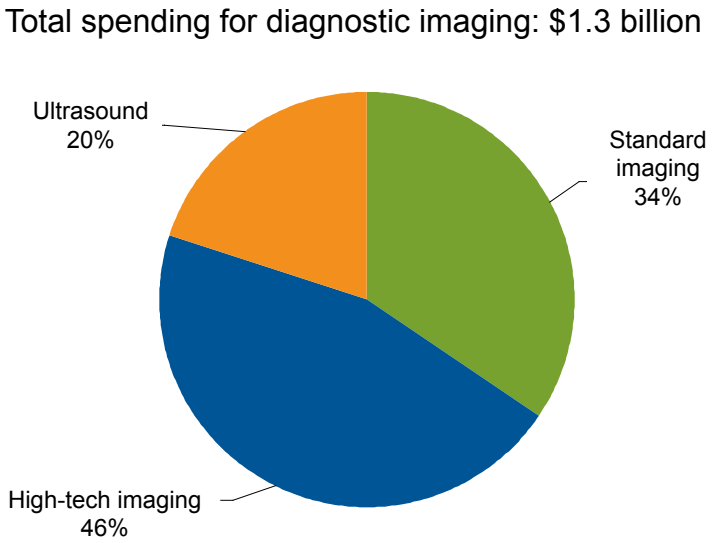
Table 21: Spending for Privately Insured Diagnostic Imaging and Spending per Member Year by Type of Service, 2007-2009

	All diagnostic imaging services	Type of service		
		Standard imaging	High-tech imaging	Ultrasound
Total spending ($ million)				
2007	$1,133.3	$386.9	$517.3	$229.1
2008	$1,204.3	$412.5	$544.9	$246.8
2009	$1,311.9	$450.9	$598.9	$262.1
Average annual change, 2007-2009	7.6%	7.9%	7.6%	7.0%
2007-2008	6.3%	6.6%	5.3%	7.7%
2008-2009	8.9%	9.3%	9.9%	6.2%
Spending per member year				
2007	$390	$133	$178	$79
2008	$421	$144	$191	$86
2009	$475	$163	$217	$95
Average annual change, 2007-2009	10.4%	10.8%	10.4%	9.7%
2007-2008	8.0%	8.4%	7.1%	9.5%
2008-2009	12.8%	13.2%	13.8%	10.0%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: High-tech imaging includes CAT/CT/CTA and MRI/MRA imaging services. Estimates include the professional component (for reading and interpreting the image) in all locations of service, and the technical component (for the cost of equipment and conducting the scan) at all locations other than inpatient hospitals. Payments for capitated services were included when attributable to specific claims, but other capitation payments and payments not reflected in claims data are excluded.

- Nearly half of total spending for privately insured diagnostic imaging services in 2009 was for high-tech imaging, including CAT/CT/CTA or MRI/MRA scans (Figure O). Standard imaging accounted for 34 percent of total spending, and ultrasound accounted for 20 percent.

Figure O: Distribution of Spending for Privately Insured Diagnostic Imaging by Type of Service, 2009



Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: High-tech imaging includes CAT/CT/CTA and MRI/MRA imaging services. Estimates include the professional component (for reading and interpreting the image) in all locations of service, and the technical component (for the cost of equipment and conducting the scan) at all locations other than inpatient hospitals. Payments for capitated services were included when attributable to specific claims, but other capitation payments and payments not reflected in claims data are excluded.

Growth in spending for imaging services

Spending per member year grew at about the same rate for each type of imaging from 2007 to 2009, averaging annual growth of 10 to 11 percent per year (Table 21).

- For each type of imaging, spending per member year grew faster from 2008 to 2009 than the year before. Spending for high-tech imaging grew somewhat faster (14 percent) than for standard imaging (13 percent) or ultrasound (10 percent).[19]

Components of change in spending for outpatient and non-hospital diagnostic imaging

- Spending per member year for outpatient and non-hospital diagnostic imaging grew about eight percent per year from 2007 to 2009 (Table 22).

[19] High-tech imaging includes MRIs and CT Scans and standard imaging includes x-rays and analog mammography.

Table 22: Components of Change in Spending per Member Year for Privately Insured Non-Inpatient FFS Diagnostic Imaging by Type of Service, 2007-2009

	Spending per member year	Spending per service	Number of services per member year
All Imaging			
2009	$372	$505	0.7
Average annual change, 2007-2009	7.9%	7.8%	0.1%
2007-2008	8.3%	7.7%	0.5%
2008-2009	7.5%	7.8%	-0.3%
Standard imaging			
2009	$127	$279	0.5
Average annual change, 2007-2009	9.1%	8.7%	0.4%
2007-2008	9.1%	9.1%	0.1%
2008-2009	9.2%	8.4%	0.7%
High-tech imaging			
2009	$169	$1,568	0.1
Average annual change, 2007-2009	6.8%	11.4%	-4.1%
2007-2008	6.6%	8.9%	-2.1%
2008-2009	6.9%	13.9%	-6.1%
Ultrasound			
2009	$77	$437	0.2
Average annual change, 2007-2009	8.3%	6.0%	2.2%
2007-2008	10.5%	6.9%	3.4%
2008-2009	6.2%	5.1%	1.0%

Source: Mathematica Policy Research analysis of private claims data for Massachusetts residents in insured and self-insured plans.
Note: High-tech imaging includes CAT/CT/CTA and MRI/MRA imaging services. Estimates include the professional component (for reading and interpreting the image) and technical component (for the cost of equipment and conducting the scan) at all locations other than inpatient hospitals or where location of service was unknown. Each imaging service is counted once, combining the professional and technical components when billed separately. Capitated claims are excluded.

- Spending per member year grew faster for standard imaging (averaging nine percent per year) than for high-tech imaging (seven percent) or ultrasound (eight percent) from 2007 to 2009. For all types of imaging, higher spending per service, as opposed to greater use of imaging services, drove much or all of the growth in spending per member year. For standard imaging services, spending per service increased nearly nine percent, with virtually no growth in the use of standard imaging per member year. For high-tech imaging, spending per service grew at an average rate of 11 percent per year, driving all of the growth in spending per member year from 2007 to 2009 as use of imaging per member year fell four percent. Only for ultrasound imaging did increased utilization contribute substantially to higher spending—but even for these services, spending per service grew nearly three times as fast (averaging six percent per year) as service use per member year (two percent per year).

III. Spending for Medicare-Covered Services: 2007-2008

Medicare is the primary source of health coverage for approximately one million Massachusetts residents, about 16 percent of the Commonwealth's total population.[20] In Massachusetts, 83 percent of Medicare beneficiaries are aged 65 or older; while the remaining 17 percent are disabled persons under age 65. Medicare's traditional fee-for-service program includes Part A Hospital Insurance, Part B Supplementary Insurance which covers physician services and a range of outpatient services, and Part D coverage for prescription drugs. Medicare requires beneficiary cost-sharing for most covered services. The specific cost-sharing requirements for different types of Medicare-covered services vary substantially by type of service. Many beneficiaries have some form of supplemental insurance that covers some amount of cost-sharing for these services.

Similar to comprehensive private insurance, Medicare covers hospital inpatient, outpatient, and professional services related to acute care. Medicare does not cover long-term institutional care, but it does cover a range of post-acute and rehabilitative services provided in specialized rehabilitation settings, in skilled nursing facilities (SNFs), or by home health agencies. Approximately one in five Medicare beneficiaries in Massachusetts receive supplemental coverage through MassHealth, which pays their Medicare cost-sharing and also provides coverage for a range of medical services and supplies that Medicare does not cover such as institutional long-term care and support services.

The Medicare spending described in this chapter includes both Medicare payments and beneficiary cost-sharing in the fee-for-service portion of the program, but not payments associated with beneficiaries enrolled in Medicare Advantage plans. In 2008, nearly 85 percent of all Medicare enrollees in the Commonwealth were enrolled in fee-for-service Medicare.[21] Medicare spending for prescription drugs reflects only Part D spending for fee-for-service enrollees. Fee-for-service spending for prescription drugs when administered by a physician (such as injectable or infused chemotherapy drugs) is included in outpatient or professional services spending under Medicare Part B.

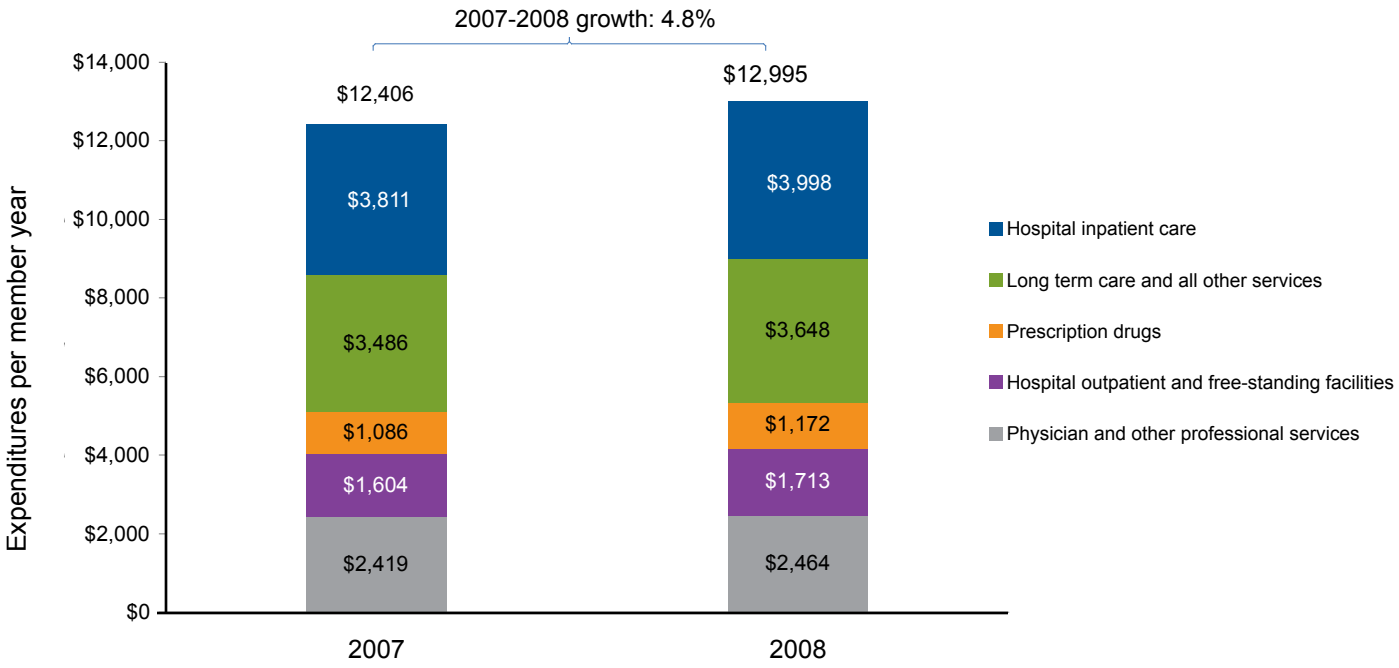
[20] Kaiser Family Foundation analysis of the CMS State/County Market Penetration file, May 2010. Available at: http://www.statehealthfacts.org/profileind.jsp?cat=6&sub=74&rgn=23, accessed 5/12/2011.

[21] Centers for Medicare and Medicaid Services. MA State/County Penetration. Available at: https://www.cms.gov/MCRAdvPartDEnrolData/MASCPen/list.asp?listpage=4, accessed 5/12/2011.

A. Overview

Per member year, fee-for-service spending on Medicare-covered services increased five percent from 2007 to 2008, from $12,406 to $12,995 (Figure P). Total Medicare fee-for-service spending (FFS) in Massachusetts increased 5.3 percent (Table 23).

Figure P: Medicare FFS Spending per Member Year by Type of Service, 2007-2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include spending among beneficiaries enrolled in Part A and B. Since about half of Part A and B enrollees were also enrolled in Part D, prescription drug spending per member year among part D enrollees was approximately twice the amounts shown here. Spending per member year on free-standing facilities was $127 million in 2007 and $144 million in 2008, or approximately 8 percent of all outpatient services and 1 percent of spending in both years. Long-term care and all other services include skilled nursing facilities hospice, home health, non-acute institutional care, durable medical equipment and other unclassified claims. Medicare spending includes beneficiary cost-sharing.

Table 23: Total Medicare FFS Spending, Spending per Member Year, and Rates of Change by Type of Service, 2007-2008

	2007	2008	Percent change 2007-2008
Total spending ($ millions)			
All services	$9,378.9	$9,875.5	5.3%
Hospital inpatient	$2,897.0	$3,061.2	5.7%
Outpatient services	$1,198.2	$1,285.4	7.3%
Hospital outpatient	$1,103.4	$1,177.1	6.7%
Other free-standing facilities	$94.8	$108.2	14.2%
Physician and other professional services	$1,803.9	$1,844.2	2.2%
Prescription drugs	$817.2	$885.0	8.3%
Long term care and all other services	$2,662.5	$2,799.7	5.2%
Spending per member year			
All services	$12,406	$12,995	4.8%
Hospital inpatient	$3,811	$3,998	4.9%
Outpatient services	$1,604	$1,713	6.8%
Hospital outpatient	$1,477	$1,569	6.2%
Other free-standing facilities	$127	$144	13.6%
Physician and other professional services	$2,419	$2,464	1.8%
Prescription drugs	$1,086	$1,172	7.9%
Long term care and all other services	$3,486	$3,648	4.7%

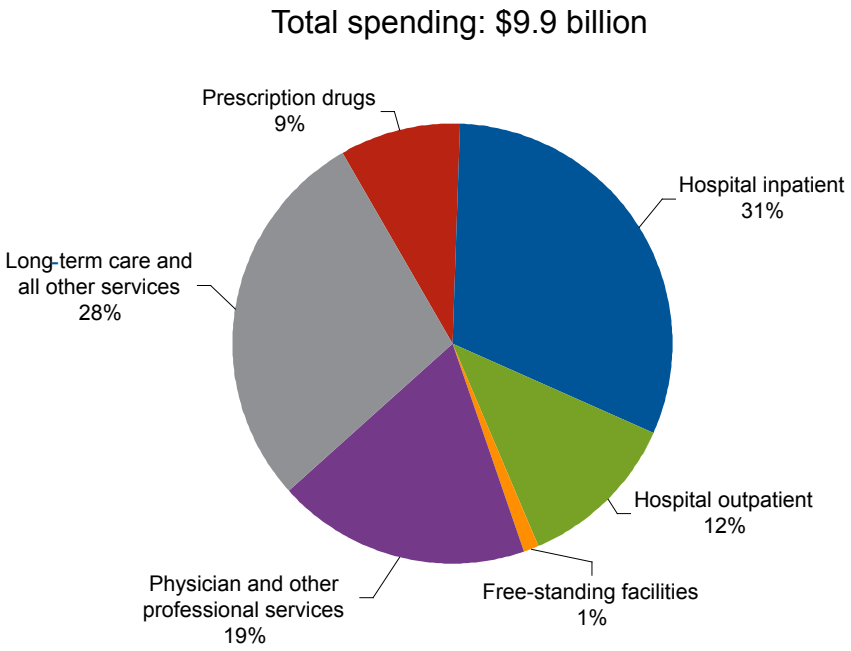
Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Total spending includes beneficiaries enrolled in either or both Part A and Part B in any month. Spending per member per year includes beneficiaries enrolled in both Parts A and B. Because about half of Part A and B enrollees were also enrolled in Part D, prescription drug spending per member year among part D enrollees was approximately twice the amounts shown here. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include skilled nursing facilities, hospice, home health, non-acute institutional care, durable medical equipment and other unclassified claims. Medicare spending includes beneficiary cost-sharing.

The largest portion of Medicare spending was for inpatient hospital care (31 percent in 2008) and long-term care and all other services (28 percent) (Figure Q). Physician and other professional services accounted for 19 percent of Medicare spending in 2008, while outpatient care was 13 percent total spending and prescription drugs was nine percent.

From 2007 to 2008, Medicare spending per member year increased nearly five percent for inpatient care, seven percent for outpatient care, and eight percent for prescription drugs (Table 23). Spending per member year for long-term care and other services increased at approximately the same rate as total spending (five percent). Spending per member year for physician and other professional services grew just two percent, more slowly than for any other service category.

Spending per member year for outpatient care in free-standing facilities grew 14 percent from 2007 to 2008, reflecting a shift in care obtained in these facilities from hospital outpatient departments. However, free-standing facilities accounted for only a small share of total spending (about one percent of total spending and eight percent of outpatient spending) in 2008 (Figure Q).

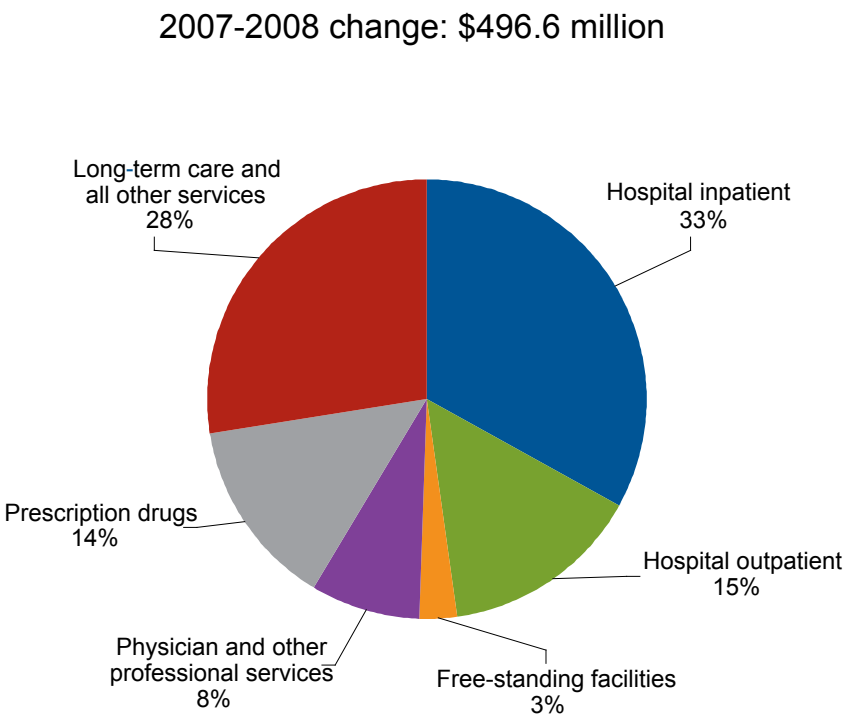
Figure Q: Distribution of Medicare FFS Spending by Type of Service, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include spending among beneficiaries enrolled in either or both Part A and Part B in any month. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include skilled nursing facilities hospice, home health, non-acute institutional care, durable medical equipment and other unclassified claims. Medicare spending includes beneficiary cost-sharing.

Inpatient hospital care and long-term care accounted for a significant share of total Medicare spending and spending growth from 2007 to 2008. Of the approximately $500 million increase in Medicare spending, inpatient care accounted for 33 percent and long-term care and all other services accounted for 28 percent (Figure R). Reflecting the relatively fast rates of growth in spending from 2007 to 2008, outpatient services (hospital outpatient and free-standing facilities) accounted for approximately 18 percent of total spending growth while prescription drugs accounted for 14 percent. Physician and other professional services accounted for eight percent of spending growth during this same time period.

Figure R: Distribution of Growth in Medicare FFS Spending by Type of Service, 2007-2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Estimates include spending among beneficiaries enrolled in either or both Part A and Part B in any month. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include skilled nursing facilities hospice, home health, non-acute institutional care, durable medical equipment and other unclassified claims. Medicare spending includes beneficiary cost-sharing.

Enrollees were responsible for 14 percent of Medicare spending in 2008 in the form of cost-sharing (Table 24). Beneficiary cost-sharing was greatest (23 percent) for outpatient hospital care and physician and other professional services, and less for prescription drugs (15 percent) and long-term care and other services (12 percent). Cost-sharing was lowest for inpatient care at seven percent.

Cost-sharing increased much more slowly from 2007 to 2008 than Medicare spending as a whole. Per member year cost-sharing increased less than two percent for all Medicare-covered services from 2007 to 2008, and one to three percent in most service categories (Table 24). The large increase in cost-sharing for outpatient care in free-standing facilities (14 percent) was directly proportional to the increase in total Medicare spending for such care from 2007 to 2008. Cost-sharing for prescription drugs among Part D enrollees declined six percent.

Table 24: Medicare Beneficiary FFS Cost-Sharing by Type of Service, 2007-2008

	Total cost-sharing 2008 ($ millions)	Cost-sharing as a percent of total Medicare spending 2008	Percent change in cost-sharing paid per member year 2007-2008
All services	$1,395.4	14.1%	1.6%
Hospital inpatient	$222.6	7.3%	2.6%
Outpatient services	$291.4	22.7%	1.6%
Hospital outpatient	$267.3	22.7%	0.6%
Other free-standing facilities	$24.2	22.3%	13.8%
Physician and other professional services	$425.1	23.1%	1.9%
Prescription drugs	$135.3	15.3%	-6.3%[a]
Long term care and all other services	$320.9	11.5%	2.5%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include skilled nursing facilities, hospice, home health, non-acute institutional care, durable medical equipment and other unclassified claims. The percent change in cost-sharing per member per year was calculated for beneficiaries enrolled in both Parts A and B.

[a] Estimate reflects the change in cost-sharing among Part D enrollees who also were enrolled in Parts A and B.

Estimates of total Medicare spending and spending per enrollee year are reported in the following sections for each major service category: hospital inpatient care; outpatient care; physician and other professional services; and prescription drugs. Since it was possible to clearly distinguish facility charges for care in free-standing outpatient facilities such as clinics, dialysis centers, and ambulatory surgery centers from other types of services, Medicare spending for outpatient care includes separate subcategories for payments to free-standing facilities as well as payments to hospital outpatient departments. Payments to each type of facility are reported separately to allow comparison with private insurance spending for hospital outpatient services. Outpatient imaging services, including facility and professional services payments, are analyzed separately.

B. Hospital Inpatient Care

Medicare spent $3.1 billion in 2008 for inpatient care, or $3,998 per member year. Spending per member year increased five percent from 2007 to 2008 (Table 25).

Table 25: Medicare FFS Spending for Inpatient Hospital Care by Type of Admission, 2007-2008

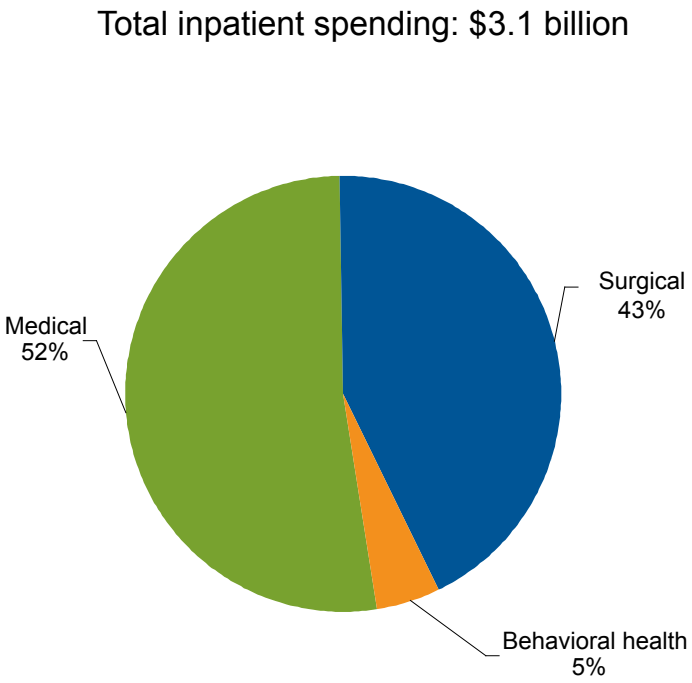
	All stays	Medical	Surgical	Behavioral health
Total spending ($ millions)				
2007	$2,897.0	$1,490.1	$1,256.5	$120.1
2008	$3,061.2	$1,601.9	$1,310.8	$143.9
Percent change, 2007-2008	5.7%	7.5%	4.3%	19.8%
Spending per member year				
2007	$3,811	$1,963	$1,650	$158
2008	$3,998	$2,099	$1,704	$188
Percent change, 2007-2008	4.9%	7.0%	3.3%	18.8%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Data include only facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing. Other services, which include maternity-related DRGs and claims with no assigned DRG, constituted 1.0 percent of Medicare spending in 2007 and 0.1 percent in 2008, and are not shown.

Inpatient spending by type of admission

- More than half of Medicare inpatient spending in 2008 (52 percent, or $1.6 billion) was associated with care for medical diagnosis-related groups (DRGs), 43 percent ($1.3 billion) with surgical DRGs, and five percent ($143.9 million) with behavioral health (Figure S).

Figure S: Medicare FFS Spending for Inpatient Hospital Care by Type of Admission, 2008

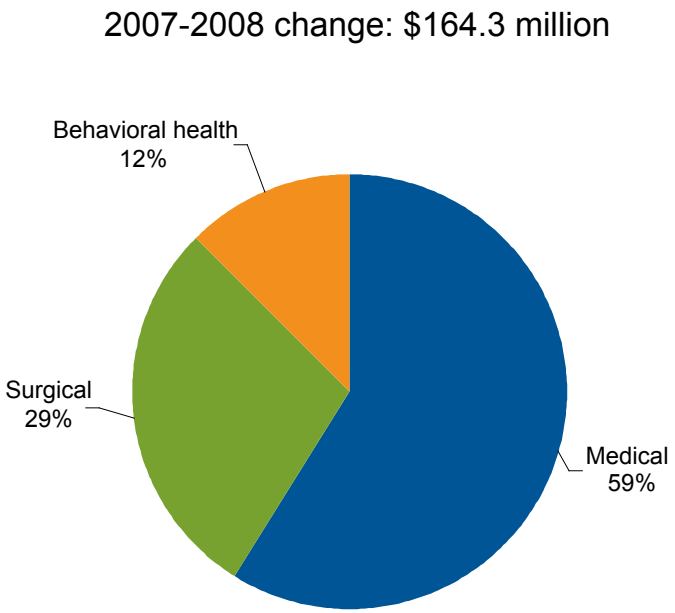


Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing. Other services, which include maternity-related DRGs and claims with no assigned DRG, were 0.1 percent of Medicare spending and are not shown.

- Medicare inpatient spending per member year grew five percent from 2007 to 2008, reaching $3,998 per member year in 2008. Inpatient spending for behavioral health DRGs grew fastest, by nearly 19 percent, although the level of spending per member year ($188 in 2008) remained relatively low (Table 25).

- Most of the growth in Medicare inpatient spending from 2007 to 2008 (59 percent) was associated with greater spending for medical DRGs (Figure T). Surgical DRGs accounted for 29 percent of spending growth, and behavioral health DRGs accounted for 12 percent.

Figure T: Distribution of Change in Medicare FFS Spending for Inpatient Hospital Care by Type of Admission, 2007-2008

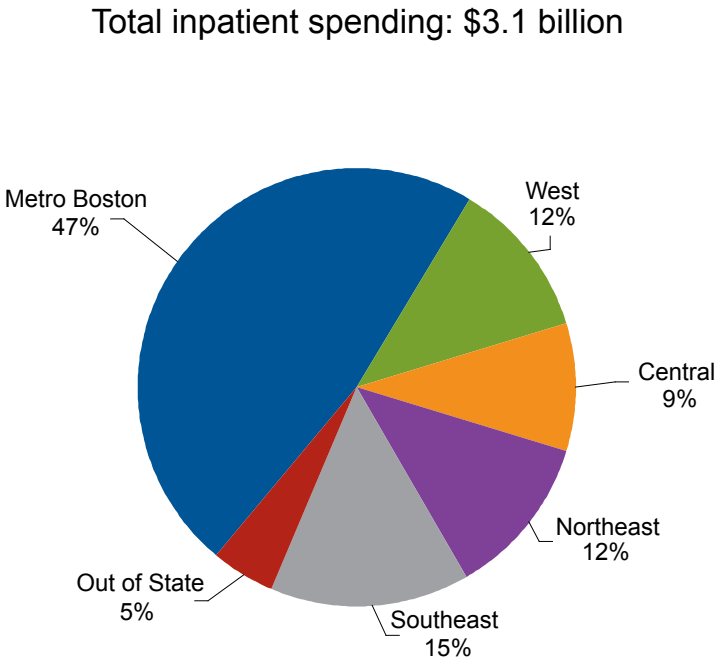


Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing. Other services, which include maternity-related DRGs and claims with no assigned DRG, constituted 1.0 percent of Medicare spending in 2007 and 0.1 percent in 2008, and are not shown.

Inpatient spending by type of hospital and region

- Nearly half of Medicare inpatient spending ($1.45 billion) occurred in hospitals in the Boston metro area in 2008. Other regions of the Commonwealth accounted for nine to 15 percent of inpatient spending (Figure U).

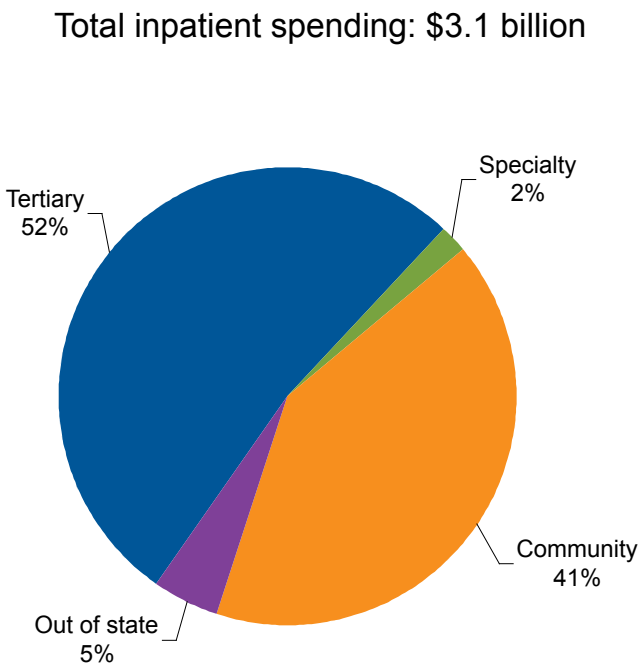
Figure U: Medicare FFS Spending for Inpatient Hospital Care by Location of Hospital, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing.

- About half of Medicare inpatient spending (52 percent or $1.60 billion) occurred in tertiary care hospitals in 2008 (Figure V). Community hospitals accounted for 41 percent ($1.26 billion), while specialty hospitals accounted for two percent ($53.2 million). Very little change occurred in the distribution of Medicare spending by DRG category, hospital type, or region from 2007 to 2008.

Figure V: Medicare FFS Spending for Inpatient Hospital Care by Type of Hospital, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing.

Components of change in inpatient spending

- The growth in Medicare inpatient spending per member year from 2007 to 2008 was largely due to increased spending per inpatient day. For all inpatient services, Medicare spending increased five percent per admission; the rate of admissions and number of days per admission changed very little (Table 26).[22] For medical and surgical DRGs, spending per admission grew seven percent from 2007 to 2008, and the number of surgical admissions per 1,000 member years fell three percent. The pattern for behavioral health inpatient care was very different with an increase of 17 percent in the number of admissions per 1,000 member years, driving 19 percent growth in Medicare spending per member year for inpatient behavioral health care.

Table 26: Components of Change in Medicare FFS Spending for Inpatient Hospital Care per Member Year by Type of Admission, 2007-2008

	Spending per member year	Spending per admission	Admissions per 1,000 member years	Number of days per admission	Spending per day
Total inpatient hospital services					
2008	$3,998	$10,377	385.3	5.4	$1,906
Percent change, 2007-2008	4.9%	5.2%	-0.2%	-0.6%	5.7%
Medical services					
2008	$2,099	$7,667	273.8	4.7	$1,632
Percent change, 2007-2008	7.0%	6.6%	0.4%	0.5%	6.1%
Surgical services					
2008	$1,704	$19,753	86.3	6.4	$3,089
Percent change, 2007-2008	3.3%	6.6%	-3.1%	0.5%	6.1%
Behavioral health services					
2008	$188	$8,419	22.3	10.4	$807
Percent change, 2007-2008	18.8%	1.9%	16.6%	-5.6%	7.9%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Data include only facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing. Changes in maternity-related DRGs and claims with no assigned DRG are not shown.

[22] Medicare inpatient hospital rates increased an estimated 3.5 percent from 2007 to 2008. Higher growth in spending per admission may relate to changes in the distribution of care across hospitals as well as case mix.

- Medicare inpatient spending per member year grew much faster for care in specialty hospitals (12 percent) than in either tertiary care hospitals (six percent) or community hospitals (five percent) (Table 27). However, spending for care in specialty hospitals in 2008 remained a relatively small share of total inpatient spending ($70 per member year compared with $2,088 in tertiary care hospitals and $1,655 in community hospitals). The faster rate of growth in Medicare inpatient spending for care in specialty hospitals was largely due to a ten-percent increase in the number of days per admission, while the increase in spending per member year for care in tertiary and community hospitals was due primarily to growth in spending per inpatient day.

Table 27: Components of Change in Medicare FFS Spending for Inpatient Hospital Care per Member Year by Type of Hospital, 2007-2008

	Spending per member year	Spending per admission	Admissions per 1,000 member years	Number of days per admission	Spending per day
Total inpatient hospital services					
2008	$3,998	$10,377	385.3	5.4	$2,384
Percent change, 2007-2008	4.9%	5.2%	-0.2%	-0.6%	5.7%
Tertiary care hospitals					
2008	$2,088	$13,270	157.3	5.6	$2,384
Percent change, 2007-2008	5.5%	5.9%	-0.4%	0.1%	5.7%
Specialty and other teaching hospitals					
2008	$70	$10,446	6.7	6.5	$1,611
Percent change, 2007-2008	12.1%	12.7%	-0.6%	9.9%	2.6%
Community hospitals					
2008	$1,655	$8,105	$204	$5	$1,567
Percent change, 2007-2008	4.5%	4.5%	0.1%	-0.8%	5.3%
Out of state hospitals					
2008	$185	$10,853	$17	$7	$1,516
Percent change, 2007-2008	-0.1%	2.4%	-2.5%	-5.6%	8.4%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Data include only facility charges for care provided at acute inpatient hospitals. Medicare spending includes beneficiary cost-sharing.

C. Outpatient Care

- Medicare spent $1.3 billion in 2008 for outpatient care, or $1,713 per member year. Spending per member year increased seven percent from 2007 to 2008 (Table 28).

Table 28: Medicare FFS Spending for Outpatient Care and Spending per Member Year by Type of Facility, 2007-2008

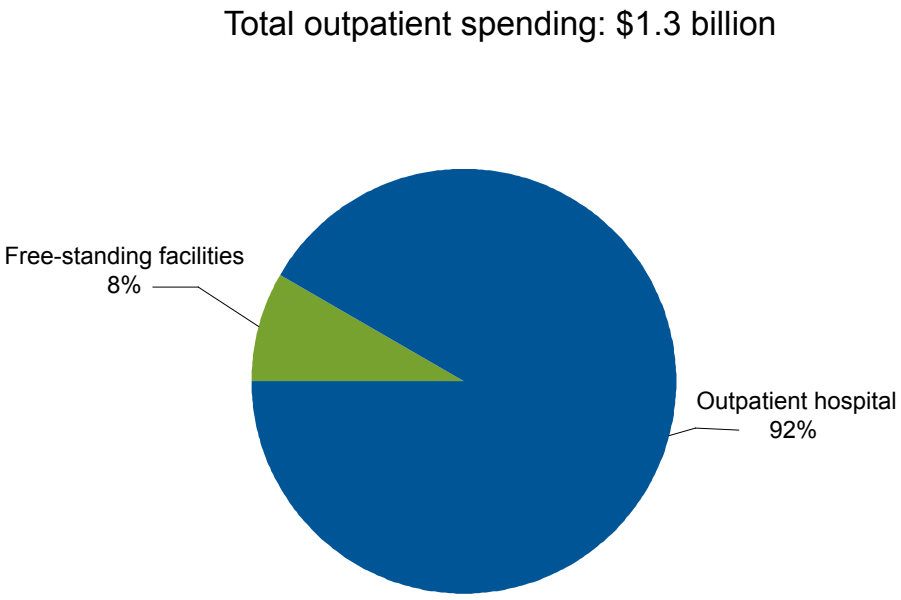
	Total spending ($ millions)			Spending per member year ($)		
	2007	2008	Percent change 2007-2008	2007	2008	Percent change 2007-2008
Total	$1,198.2	$1,285.4	7.3%	$1,604	$1,713	6.8%
Outpatient hospital	$1,103.4	$1,177.1	6.7%	$1,477	$1,569	6.2%
Free-standing facilities	$94.8	$108.2	14.2%	$127	$144	13.4%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Data include only facility payments for care provided at outpatient facilities. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

Outpatient spending by type of facility

- In 2008, 92 percent of Medicare spending for outpatient care occurred in hospital outpatient departments (Figure W). Free-standing facilities accounted for just eight percent of Medicare outpatient spending.
- Medicare spending for outpatient care per member year grew nearly seven percent from 2007 to 2008, reaching $1,713 in 2008 (Table 28). Spending per member year grew six percent for outpatient hospital care, and more than 13 percent for care in free-standing facilities.

Figure W: Medicare FFS Spending for Outpatient Care by Type of Facility, 2008

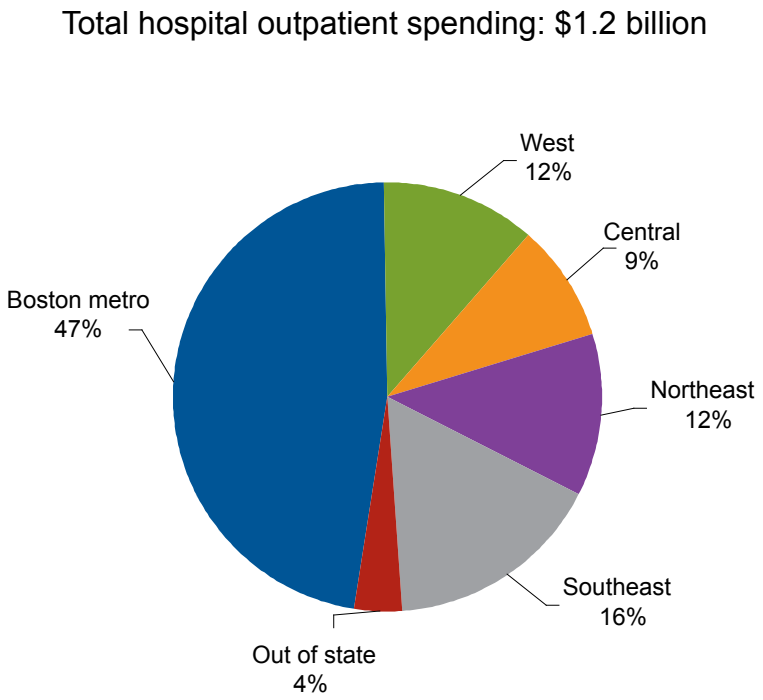


Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility payments for care provided at outpatient facilities. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

Hospital outpatient spending by type of hospital and region

- Nearly half of Medicare spending for hospital outpatient care (47 percent) occurred in the Boston metro area in 2008 (Figure X). Hospitals in other regions of the state accounted for much smaller shares of total spending, the largest being the Southeast (16 percent), and the Northeast and West (each approximately 12 percent).

Figure X: Medicare FFS Spending for Outpatient Hospital Care by Location of Service, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility payments for care provided at outpatient facilities. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

- Medicare spending for hospital outpatient care increased $73.7 million from 2007 to 2008 (Table 29). Most of this increase (61 percent) was related to higher spending for outpatient care obtained in Boston metro area hospitals, especially in Boston metro area tertiary care hospitals (41 percent).

Table 29: Distribution of Change in Medicare FFS Spending for Outpatient Hospital Care by Type and Location of Hospital, 2007-2008

	Change in spending 2007-2008 ($ millions)	Change in spending as a percent of total 2007-2008 change
Total hospital outpatient	**$73.7**	**100.0%**
Boston metro area	**$45.3**	**61.4%**
Tertiary care hospitals	$30.5	41.4%
Other specialty hospitals	$5.4	7.3%
Community hospitals	$9.4	12.7%
Central	**$8.6**	**11.6%**
Tertiary care hospitals	$5.9	8.0%
Community hospitals	$2.6	3.6%
Southeast	**$5.2**	**7.0%**
Tertiary care hospitals	$3.7	5.0%
Community hospitals	$1.5	2.0%
Northeast	**$4.0**	**5.4%**
Tertiary care hospitals	$1.2	1.6%
Community hospitals	$2.8	3.8%
West	**$8.5**	**11.5%**
Tertiary care hospitals	$3.3	4.5%
Community hospitals	$5.2	7.0%
Out of state	**$2.3**	**3.1%**

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates are facility payments for care provided at outpatient facilities. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

Components of change in outpatient spending

- Growth in Medicare outpatient spending per member year from 2007 to 2008 was due more to growth in service use than growth in average service cost. The number of services per member year grew five percent for care obtained in hospital outpatient departments, and nearly 12 percent for care obtained in free-standing facilities (Table 30). Average spending per service in either type of facility grew less than two percent.

Table 30: Components of Change in Medicare FFS Spending for Outpatient Care per Member Year by Type of Facility, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
All outpatient services			
2008	$1,713	$51	33.5
Percent change 2007-2008	6.8%	1.5%	5.2%
Hospital outpatient			
2008	$1,569	$48	32.6
Percent change 2007-2008	6.2%	1.1%	5.1%
Free-standing facilities			
2008	$144	$177	0.8
Percent change 2007-2008	13.6%	1.6%	11.8%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Estimates are facility payments for care provided at outpatient facilities. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member year may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

- While growth in average Medicare spending per outpatient service increased modestly overall, it grew faster for care obtained in Boston metro area hospital outpatient departments (two percent) than in other areas of the state, and faster for Boston metro area tertiary care facilities (three percent) than for other types of facilities, even in the Boston metro area (Table 31). Average Medicare spending per service for care in community hospitals declined slightly in the Boston metro area, as well as in other areas of the state.

Table 31: Average Medicare FFS Spending per Service for Outpatient Hospital Care by Location and Type of Hospital, and Percent Change, 2007-2008

	Boston metro area		All other areas	
	Average spending per service[a]	Percent of services	Average spending per service[a]	Percent of services
Total hospital outpatient services				
2008	$53	44.5%	$44	55.5%
Percent change 2007-2008	2.0%	N/A	0.1%	N/A
Tertiary care hospitals				
2008	$54	56.8%	$43	43.2%
Percent change 2007-2008	3.3%	N/A	1.8%	N/A
Specialty hospitals				
2008	$76	100.0%	--[b]	--[b]
Percent change 2007-2008	-0.3%	N/A	N/A	N/A
Community hospitals				
2008	$43	28.7%	$45	71.3%
Percent change 2007-2008	-0.2%	N/A	-0.8%	N/A

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Estimates are facility payments for care provided at outpatient facilities in Massachusetts. Medicare spending includes beneficiary cost-sharing. Outpatient hospital services include all services delivered in facilities affiliated with acute care hospitals. Free-standing facilities include ambulatory surgical centers, independent diagnostic testing facilities, and radiation therapy centers.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

[b] There are no specialty hospitals outside of the Boston metro area.

D. Professional Services

- Medicare spent $1.8 billion in 2008 for professional services, or $2,464 per member year. Spending per member year increased two percent from 2007 to 2008 (Table 32). Spending for primary care providers increased two percent, while spending for specialists declined by 2.7 percent.[23] Medicare spending for other non-physician professional services grew five percent but remained a relatively small component of all Medicare spending for professional services.

Table 32: Medicare FFS Spending for Physician and Other Professional Services by Type of Provider, 2007-2008

	Total	Primary care	Specialists	Other professional services
Total spending ($ millions)				
2007	$1,803.9	$440.2	$1,191.6	$165.9
2008	$1,844.2	$448.2	$1,159.9	$174.1
Percent change 2007-2008	2.2%	1.8%	-2.7%	4.9%
Spending per member year ($)				
2007	$2,419	$591	$1,598	$223
2008	$2,464	$599	$1,549	$233
Percent change 2007-2008	1.8%	1.4%	-3.1%	4.5%

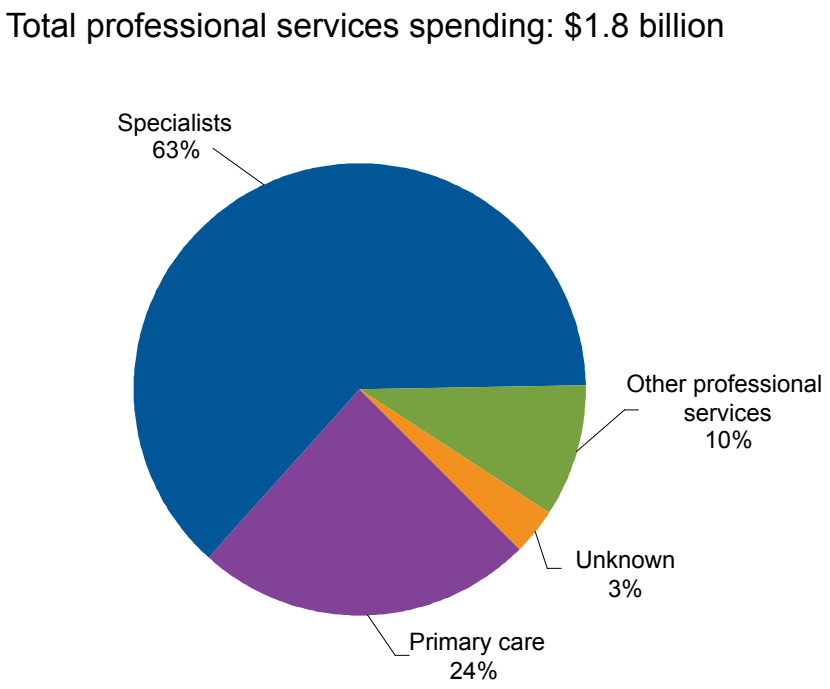
Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Medicare spending includes beneficiary cost-sharing. Total spending for unknown professional types was $6.1 million in 2007 and $62.0 million in 2008 (not shown). Primary care includes general practitioners, family practitioners, internists, OB/GYNs, pediatricians, geriatricians, and physicians classified as practicing public health, general preventive medicine, or adolescent medicine, as well as physician assistants, doctors of osteopathy, and nurse practitioners. Specialists include all other medical doctors. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and all other medical professionals.

[23] Some of the observed decline in payments to specialists may reflect coding issues in the data. Specifically, "unknown" providers include multispecialty groups. While relatively low, spending for "unknown" providers grew steeply from 2007 to 2008 (from $8 to $83 per member year). If this change reflected growth in the number of specialists who affiliated with multi-specialty groups in 2008, it might explain the entire decline in Medicare spending for specialists.

Professional services spending by type of provider

- Nearly two-thirds of Medicare spending for physician and other professional services in 2008 (63 percent) was associated with care obtained from physician specialists (Figure Y). Medicare spending for primary care accounted for 24 percent of total spending for professional services, and other non-physician professional services accounted for ten percent.

Figure Y: Medicare FFS Spending for Physician and Other Professional Services, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Medicare spending includes beneficiary cost-sharing. Primary care includes general practitioners, family practitioners, internists, OB/GYNs, pediatricians, geriatricians, as well as physicians classified as practicing public health, general preventive medicine, adolescent medicine, and physician assistants, doctors of osteopathy, and nurse practitioners. Specialists includes all other medical doctors. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, nutritionists, dentists, and all other medical professionals.

Professional services spending by location of service

- About half of Medicare spending per member year for professional services (52 percent in 2008) was for office-based services (Table 33). Services provided in outpatient facilities or inpatient hospital settings accounted for much smaller shares of spending for professional services (respectively 21 and 22 percent in 2008).
- More than two-thirds of Medicare spending for non-physician professional services (69 percent in 2008) was for care provided in an office or clinic (Table 33). However, much of the growth in total Medicare spending for these services from 2007 to 2008 was associated with care in outpatient facilities or inpatient hospitals. Spending for other professional services in outpatient facilities grew nearly 14 percent; payments (billed separately) for inpatient professional services increased nine percent.

Table 33: Medicare FFS Spending for Professional Services per Member Year and Percent Change by Type of Provider and Location of Service, 2008

	Total	Primary care	Specialists	Other professional services
Spending per member year				
Total	$2,464	$591	$1,598	$223
Inpatient hospital	$533	$155	$364	$10
Outpatient facility	$507	$67	$415	$15
Office or clinic	$1,270	$309	$783	$153
Psychiatric facility	$12	$1	$7	$5
All other locations	$143	$59	$29	$40
Percent of total by type of provider				
Total	100.0%	100.0%	100.0%	100.0%
Inpatient hospital	21.6%	25.8%	22.4%	4.9%
Outpatient facility	20.6%	10.9%	26.2%	7.2%
Office or clinic	51.6%	52.0%	49.3%	69.1%
Psychiatric facility	0.5%	0.1%	0.4%	1.7%
All other locations	5.8%	11.2%	1.7%	17.0%
Percent change 2007-2008				
Total	1.8%	1.4%	-3.1%	4.5%
Inpatient hospital	0.3%	-0.4%	-4.5%	9.4%
Outpatient facility	1.7%	-2.8%	-2.4%	13.7%
Office or clinic	1.8%	0.9%	-2.4%	5.0%
Psychiatric facility	-6.3%	-10.2%	-7.7%	-11.7%
All other locations	9.1%	13.7%	-10.9%	-0.2%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Medicare spending includes beneficiary cost-sharing. Total spending for unknown professional types was $6.1 million in 2007 and $62.0 million in 2008 (not shown). Primary care includes general practitioners, family practitioners, internists, OB/GYNs, pediatricians, geriatricians, and physicians classified as practicing public health, general preventive medicine, or adolescent medicine, as well as physician assistants, doctors of osteopathy, and nurse practitioners. Specialists include all other medical doctors. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, dentists, nutritionists, and all other medical professionals.

Components of change in professional services spending

- The increase in Medicare spending for professional services per member year from 2007 to 2008 was due to an increase in the use of non-physician professional services (Table 34). The three percent decline in spending for specialists, the largest category of Medicare spending for professional services, reflected almost equally lower service use and lower average spending per service.[24]

Table 34: Components of Change in Medicare FFS Spending per Member Year for Professional Services by Type of Provider, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
Total			
2008	$2,464	$64	38.3
Percent change, 2007-2008	1.8%	-0.4%	2.2%
Primary care			
2008	$599	$52	11.6
Percent change, 2007-2008	1.4%	2.3%	-0.9%
Specialists			
2008	$1,549	$78	19.9
Percent change, 2007-2008	-3.1%	-1.5%	-1.6%
Other professional services			
2008	$233	$42	5.5
Percent change, 2007-2008	4.5%	3.9%	0.6%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.

Note: Medicare spending includes beneficiary cost-sharing. Total spending for unknown professional types was $6.1 million in 2007 and $62.0 million in 2008 (not shown). Primary care includes general practitioners, family practitioners, internists, OB/GYNs, pediatricians, geriatricians, and physicians classified as practicing public health, general preventive medicine, or adolescent medicine; as well as physician assistants, doctors of osteopathy, and nurse practitioners. Specialists include all other medical doctors. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, dentists, nutritionists, and all other medical professionals.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

[24] Medicare reduced physician fee schedules in Massachusetts by an estimated 10.1 percent in 2008, with the exception of anesthesiology for which payment rates were increased by 6.2 percent (DHCFP unpublished estimates). The impact of reduced payment rates on spending per service may have been partially offset by a change in the distribution of Medicare-covered services among physicians.

- Average Medicare spending per service declined from 2007 to 2008 at most sites of care. Spending per service in hospital outpatient and inpatient settings declined approximately two percent. In psychiatric facilities, average spending per service declined three percent. Conversely, the number of services provided per member year grew in most settings, especially in hospital outpatient departments (four percent) (Table 35).

Table 35: Components of Change in Medicare FFS Spending per Member Year for Professional Services by Location of Service, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
Total			
2008	$2,464	$64	38.3
Percent change, 2007-2008	1.8%	-0.4%	2.2%
Inpatient hospital			
2008	$533	$84	6.3
Percent change, 2007-2008	0.3%	-1.6%	2.0%
Outpatient hospital			
2008	$507	$68	7.5
Percent change, 2007-2008	1.7%	-2.0%	3.8%
Office or clinic			
2008	$1,270	$58	22.1
Percent change, 2007-2008	1.8%	-0.7%	2.5%
Psychiatric facility			
2008	$12	$43	0.3
Percent change, 2007-2008	-6.3%	-3.1%	-3.3%
All other locations			
2008	$143	$65	2.2
Percent change, 2007-2008	9.1%	13.7%	-4.0%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare

Note: Medicare spending includes beneficiary cost-sharing. Primary care includes general practitioners, family practitioners, internists, OB/GYNs, pediatricians, geriatricians, as well as physicians classified as practicing public health, general preventive medicine, adolescent medicine, and physician assistants, doctors of osteopathy, and nurse practitioners. Specialists includes all other medical doctors. Other professionals include all other nurses, midwives, podiatrists, therapists, psychologists, chiropractors, dentists, nutritionists, and all other medical professionals.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

E. Prescription Drugs

- Medicare spent $885.0 million for prescription drugs in 2008, or $2,213 per member year among Part D enrollees. Spending per member year increased four percent from 2007 to 2008 (Table 36).

Table 36: Medicare FFS Spending for Prescription Drugs and Spending per Member Year, 2007-2008

	Total spending ($ millions)	Spending per member year ($)
2007	$817.2	$2,127
2008	$885.0	$2,213
Percent change, 2007-2008	8.3%	4.0%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in Medicare Part D.
Note: Medicare spending for prescription drugs includes beneficiary cost-sharing.

Growth in prescription drug spending and beneficiary cost-sharing

- Medicare spending for prescription drugs grew eight percent from 2007 to 2008, as the number of Part D enrollees increased (Table 36).
- Part D enrollees paid approximately 15 percent of the cost of Medicare-covered prescription drugs in 2008 as cost-sharing (Table 37). Cost-sharing per member year fell six percent from 2007 to 2008, from $361 per member year to $339.

Table 37: Medicare FFS Spending for Prescription Drugs per Member Year and Beneficiary Cost-Sharing, 2007-2008

	Total spending per member year	Beneficiary cost-sharing per member year	Beneficiary cost-sharing as a percent of total spending
2007	$2,127	$361	17.0%
2008	$2,213	$339	15.3%
Percent change, 2007-2008	4.0%	-6.3%	N/A

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in Medicare Part D.
Note: Medicare spending for prescription drugs includes beneficiary cost-sharing.

Components of change in prescription drug spending

- Growth in spending per member year for prescription drugs from 2007 to 2008 was due to growth in both the average cost of filled prescriptions (2.5 percent) and the number of prescriptions filled per member year (1.5 percent) (Table 38).

Table 38: Components of Change in Medicare FFS Spending per Member Year for Prescription Drugs, 2007-2008

	Spending per member year	Average spending per filled prescription	Number of filled prescriptions per member year
2008 Spending	$2,213	$51	43.0
Percent change, 2007-2008	4.0%	2.5%	1.5%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in Medicare Part D.
Note: Medicare spending for prescription drugs includes beneficiary cost-sharing.

F. Diagnostic Imaging Services

This section considers the level and growth of spending for Medicare-covered diagnostic imaging, including professional charges for diagnostic imaging and non-inpatient facility charges.

- Medicare spent $451.4 million in 2008 for diagnostic imaging services, equal to $602 per member year. Spending per member year increased two percent from 2007 to 2008 (Table 39).

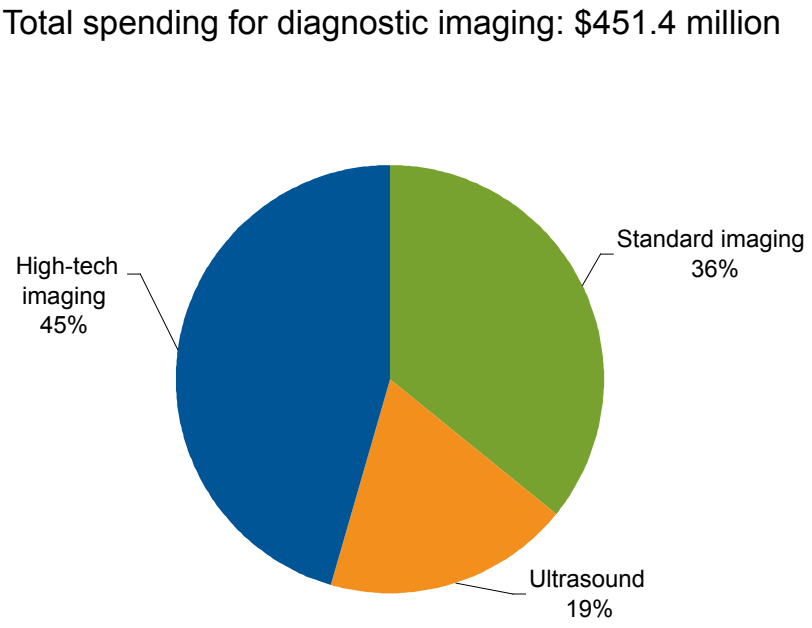
Table 39: Medicare FFS Spending for Diagnostic Imaging Services and Spending per Member Year, 2007-2008

	Total spending ($ millions)	Spending per member year ($)
2007	$441.8	$592
2008	$451.4	$602
Percent change, 2007-2008	2.2%	1.8%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include professional and facility charges when not otherwise included in DRG payments for an inpatient stay. Medicare spending includes beneficiary cost-sharing.

- Nearly half of Medicare spending for imaging services was for high-tech imaging (CAT/CT/CTA and MRI/MRA scans) in 2008 (Figure Z). Standard imaging (including X-rays and analog mammography) accounted for 36 percent of Medicare spending for imaging services, and ultrasound accounted for 19 percent.

Figure Z: Medicare FFS Spending for Diagnostic Imaging Services by Type of Service, 2008

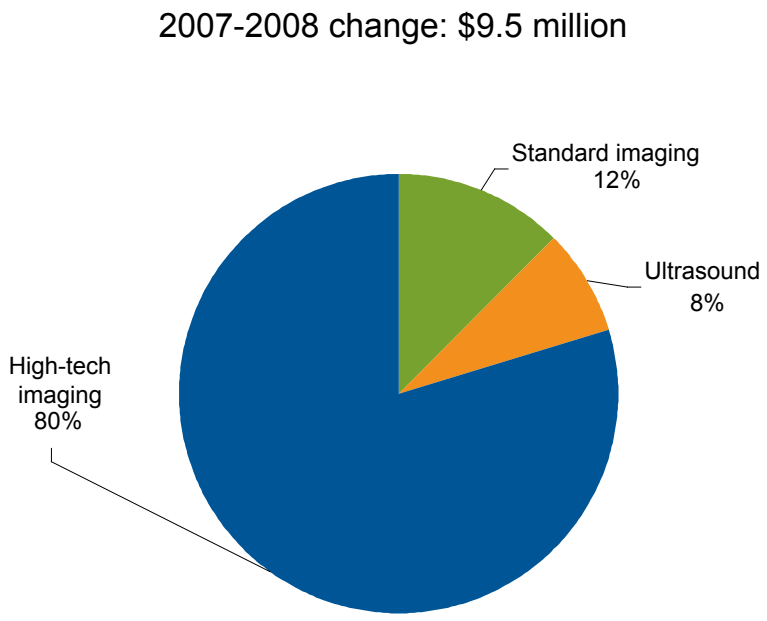


Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include professional and facility charges when not otherwise included in DRG payments for an inpatient stay. Medicare spending includes beneficiary cost-sharing. High-tech imaging includes CAT/CT/CTA and MRI/MRA scans.

Growth in spending for imaging services

- Medicare spending for imaging services grew two percent ($9.5 million) from 2007 to 2008 (Table 39). Most of this increase ($7.6 million or 80 percent) was due to an increase in spending for high-tech imaging (Figure AA).

Figure AA: Distribution of Change in Medicare FFS Spending for Diagnostic Imaging by Type of Service, 2007-2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include professional and facility charges when not otherwise included in DRG payments for an inpatient stay. Medicare spending includes beneficiary cost-sharing. High-tech imaging includes CAT/CT/CTA and MRI/MRA scans.

- Spending for high-tech imaging grew nearly four percent from 2007 to 2008, while spending for standard imaging and ultrasound increased less than one percent (Table 40).
- Medicare spending for professional imaging services related to inpatient ultrasound and high-tech imaging grew four percent from 2007 to 2008, but remained a relatively small component of Medicare spending for imaging services (Table 40).

Table 40: Medicare FFS Spending for Diagnostic Imaging Services by Type and Location of Service, and Percent Change, 2007-2008

	All locations ($ millions)	Outpatient facilities, office/clinics, and other facilities ($ millions)	Professional services for inpatient imaging ($ millions)
Total spending			
2008	$451.4	$422	$30
Percent change, 2007-2008	2.2%	2.1%	3.0%
Standard imaging			
2008	$162.2	$154	$8
Percent change, 2007-2008	0.7%	0.8%	-0.4%
Ultrasound			
2008	$83.9	$76	$8
Percent change, 2007-2008	0.9%	0.6%	4.1%
High-tech imaging			
2008	$205.2	$191	$14
Percent change, 2007-2008	3.8%	3.8%	4.4%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include professional and facility charges when not otherwise included in DRG payments for an inpatient stay. Medicare spending includes beneficiary cost-sharing. Outpatient imaging includes payments for outpatient facilities and professional services. Inpatient imaging spending reflects payments for professional services provided during an inpatient stay and not included in DRG payments. High-tech imaging includes CAT/CT/CTA and MRI/MRA scans.

Components of change in spending for imaging services

- Per member year, Medicare spending for imaging services increased two percent from 2007 to 2008, reflecting growth in the volume of services per member year for all types of imaging (Table 41).
- The number of imaging services provided to Medicare patients increased across all types of imaging, but for high-tech services spending per service also increased. Medicare spending per service for high-tech imaging grew nearly three percent from 2007 to 2008, compared with a two percent decrease in spending per service for both standard imaging and ultrasound (Table 41).

Table 41: Components of Change in Medicare FFS Spending per Member Year for Diagnostic Imaging Services by Type of Service, 2007-2008

	Spending per member year	Average Spending per service	Number of services per member year
All imaging			
2008	$602	$157	3.83
Percent change: 2007-2008	1.8%	-0.5%	2.2%
Standard imaging			
2008	$216	$88	2.47
Percent change: 2007-2008	0.4%	-2.2%	2.6%
Ultrasound			
2008	$112	$157	0.71
Percent change: 2007-2008	0.5%	-1.6%	2.2%
High-tech imaging			
2008	$274	$427	0.64
Percent change: 2007-2008	3.4%	2.5%	0.9%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicare.
Note: Estimates include professional and facility charges when not otherwise included in DRG payments for an inpatient stay. Medicare spending includes beneficiary cost-sharing. High-tech imaging includes CAT/CT/CTA and MRI/MRA scans.

IV. Spending for MassHealth-Covered Services: 2007-2008

MassHealth is the Commonwealth's Medicaid program and the Children's Health Insurance Program, which covers low-income families with children. MassHealth covers nearly two-thirds of Massachusetts nursing home residents, about one-third of Massachusetts children, and more than a quarter of Massachusetts non-elderly adults with disabilities.[25] MassHealth is the second largest insurer in the state.

Since 1997, MassHealth has operated under a federal waiver, enabling the program to expand coverage to low-income and underserved populations in various categories of need with federal funds that match the state's contribution. The state's comprehensive health reform enacted in 2006 further expanded MassHealth's role, linking it to the new Commonwealth Care premium assistance program for low-income adults.[26] Resident adults with income below 150 percent of the federal poverty level pay no premiums for Commonwealth Care coverage, and MassHealth receives federal matching funds for these enrollees. MassHealth also provides supplemental coverage to people who qualify for MassHealth coverage but are eligible for Medicare or employer-sponsored insurance. This supplemental coverage ensures that their combined levels of coverage and cost-sharing are equal to that available under MassHealth.

In 2008, more than a million Massachusetts residents were enrolled in MassHealth plans, accounting for 15.6 million member months. Of these, 12 percent (mostly adults under age 65) were in restricted benefit plans that operated under waivers or were part of MassHealth demonstration programs.[27] These restricted benefit plans offer acute care coverage similar to standard MassHealth, but generally exclude skilled nursing facility and community-based long-term care, non-emergency medical transportation, and occasionally dental services.[28]

MassHealth provides both fee-for-service (FFS) and capitated coverage. In 2007 and 2008, the fee-for-service program covered more than half of all MassHealth enrollees (respectively, 62 percent and 58 percent of covered members). These enrollees included residents who were permanently institutionalized or eligible for a category of assistance that did not provide standard coverage. However, even fee-for-service enrollees typically have some share of benefits provided under capitation such as behavioral health services or primary care case management.[29] Fee-for-service payments accounted for 76 percent of total MassHealth spending in 2008, including the cost of long-term care.

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[25] Robert Seifert and Stephanie Anthony, *The Basics of MassHealth*, Massachusetts Medicaid Policy Institute Fact Sheet, February 2011. Available at: http://bluecrossfoundation.org/~/media/MMPI/Files/The%20Basics%20of%20the%20Massachusetts%20MassHealth%20Program%20February%202011.pdf, accessed 5/13/2011.

[26] Most adults with incomes up to 300 percent of the federal poverty level who do not qualify for MassHealth are eligible for publicly financed subsidies for health coverage through Commonwealth Care.

[27] Summary eligibility and enrollment categories, and member months in each category are shown in the *Technical Appendix*.

[28] Robert Seifert and Stephanie Anthony, *The Basics of MassHealth,* Ibid.

[29] Massachusetts Medicaid Policy Institute, MassHealth Enrollment: Caseload and Trends as of November 30, 2010. Available at: http://www.massMassHealth.org/~/media/MMPI/Files/MassHealth%20Enrollment%20Nov2010%20%20FINAL.pdf, accessed 5/10/2011.

The data presented include all spending for which MassHealth received federal matching funds—including spending for restricted-benefit programs.[30] This broad inclusion of programs and populations is intended to provide a fairly complete picture of MassHealth spending and provider payments, although it obscures information that would relate to any one program or enrollee group—including populations enrolled in restricted benefit plans.[31] However, enrollees in full-benefit plans accounted for nearly 90 percent of total member months, and it is their spending patterns and trends that largely drive total MassHealth spending.

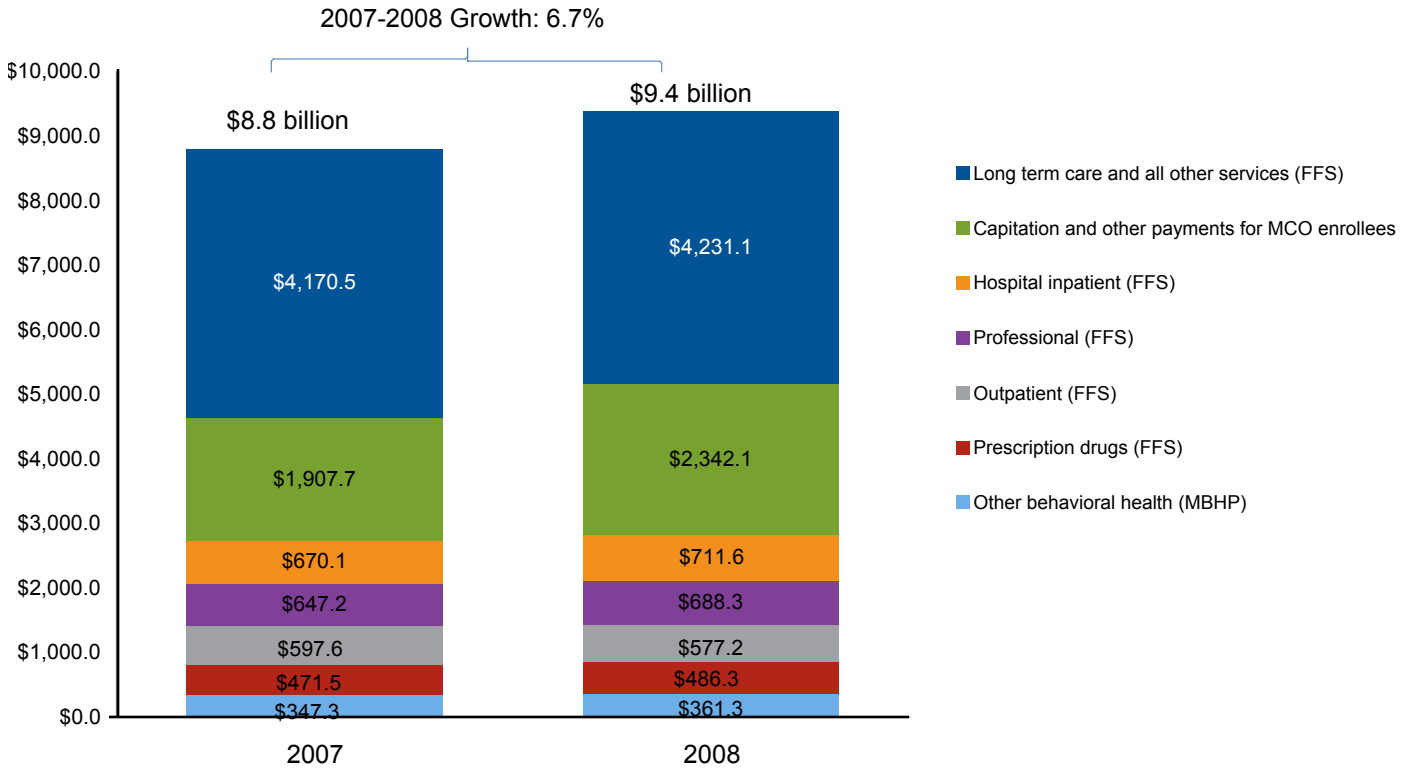
A. Overview

Total MassHealth spending increased nearly seven percent from 2007 to 2008, from $8.8 billion to $9.4 billion (Figure AB). FFS payments accounted for three-fourths ($7.1 billion) of total MassHealth spending (Figure AC). Sixty percent of FFS spending in 2008 was for long-term care and other services, followed by payments for inpatient hospital care (10 percent), physician and other professional services (10 percent), outpatient services for hospital outpatient and free-standing facilities (eight percent), prescription drugs (seven percent), and behavioral health plan payments (five percent).

[30] The analysis includes fully subsidized Commonwealth Care enrollees, and individuals receiving supplemental coverage (i.e. qualify for MassHealth coverage but are eligible for Medicare or employer-sponsored insurance).

[31] These enrollees are somewhat different than those eligible for full benefits and their benefits generally do not include long-term care. Therefore, the configuration of spending for restricted-benefits enrollees is in some ways quite different from that in full benefit plans, and it may change from year to year due to program changes.

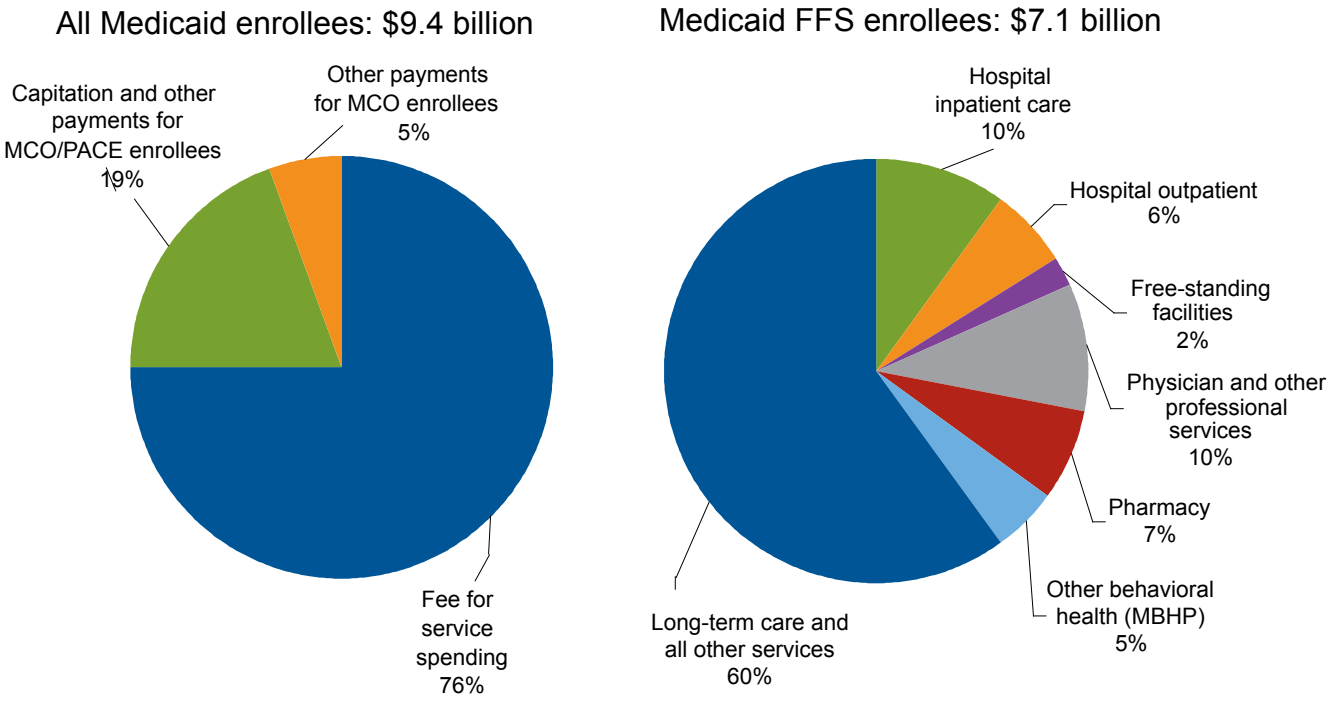
Figure AB: MassHealth Spending for FFS and MCO Enrollees by Type of Service, 2007-2008 ($ millions)



Source: Mathematica Policy Research analysis of MSIS claims data and capitation payments for Massachusetts Medicaid beneficiaries and Commonwealth Care enrollees with federal match, enrolled in fee-for-service Medicaid or comprehensive managed care plans.

Note: Payments for inpatient, outpatient, professional, prescription drugs, and all other services were analyzed from claims data for residents in fee-for-service Medicaid. Capitation payments for managed care plans include payments for comprehensive managed care enrollees (MCO); other behavioral health payments include payments to capitated behavioral health plans (MBHP) on behalf of FFS enrollees. Other payments for managed care enrollees include payments, transportation, dental, and other services identified in claims data. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include care in long-term care facilities and rehabilitation or psychiatric facilities, as well as home health services, laboratory and x-ray services, transportation services, personal care services, hospice, and other services.

Figure AC: Distribution of MassHealth Spending by Enrollee Type, 2008



Source: Mathematica Policy Research analysis of MSIS claims data and capitation payments for Massachusetts Medicaid beneficiaries and Commonwealth Care enrollees with federal match, enrolled in fee-for-service Medicaid or comprehensive managed care plans.

Note: Payments for inpatient, outpatient, professional, prescription drugs, and all other services were analyzed from claims data for residents in fee-for-service Medicaid. Capitation payments for managed care plans include payments for comprehensive managed care enrollees (MCO); other behavioral health payments include payments to capitated behavioral health plans (MBHP) on behalf of FFS enrollees. Other payments for managed care enrollees include payments, transportation, dental, and other services identified in claims data. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include care in long-term care facilities and rehabilitation or psychiatric facilities, as well as home health services, laboratory and x-ray services, transportation services, personal care services, hospice, and other services.

Accounting for enrollment growth, MassHealth spending per member year grew relatively slowly from 2007 to 2008. Per member year, payments for enrollees in managed care organizations (MCOs) or programs for all-inclusive care for the elderly (PACE) grew less than two percent, while spending per member per year for FFS enrollees grew three percent (Table 42).

Table 42: MassHealth Spending for MCO and FFS Enrollees, Spending per Member Year, and Rates of Change, 2007-2008

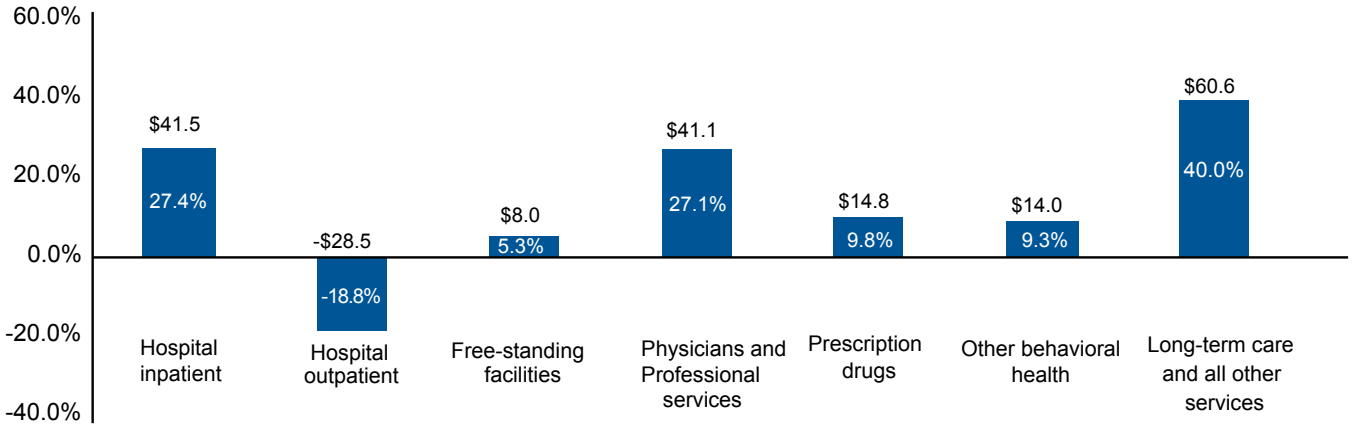
	2007	2008	Percent change 2007-2008
Total spending ($ millions)	**$8,811.9**	**$9,398.0**	**6.7%**
Fee for service spending	$6,904.2	$7,055.9	2.2%
Hospital inpatient care	$670.1	$711.6	6.2%
Outpatient services	$597.6	$577.2	-3.4%
Hospital outpatient	$450.6	$422.1	-6.3%
Free-standing facilities	$147.0	$155.1	5.5%
Physician and other professional services	$647.2	$688.3	6.4%
Pharmacy	$471.5	$486.3	3.1%
Other behavioral health	$347.3	$361.3	4.0%
Long term care and all other services	$4,170.5	$4,231.1	1.5%
Capitation and other payments for MCO/PACE enrollees	$1,621.4	$1,829.8	12.9%
Spending per member year ($)	**$13,981**	**$14,378**	**2.8%**
Fee for service spending	$9,802	$10,132	3.4%
Hospital inpatient care	$885	$955	7.9%
Outpatient services	$789	$774	-1.9%
Hospitals	$595	$566	-4.9%
Free-standing facilities	$194	$208	7.1%
Physician and other professional services	$855	$923	8.0%
Pharmacy	$623	$652	4.7%
Other behavioral health	$1,142	$1,153	0.9%
Long term care and all other services	$5,508	$5,675	3.0%
Capitation and other payments for MCO/PACE enrollees	$4,179	$4,246	1.6%

Source: Mathematica Policy Research analysis of MSIS claims data and capitation payments for Massachusetts Medicaid beneficiaries and Commonwealth Care enrollees with federal match, enrolled in fee-for-service Medicaid or comprehensive managed care plans.

Note: Payments for inpatient, outpatient, professional, prescription drugs, and all other services were analyzed from claims data for residents in fee-for-service Medicaid. Capitation payments for managed care plans include payments for comprehensive managed care enrollees (MCO); other behavioral health payments include payments to capitated behavioral health plans (MBHP) on behalf of FFS enrollees. Other payments for managed care enrollees include payments, transportation, dental, and other services identified in claims data. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include care in long-term care facilities and rehabilitation or psychiatric facilities, as well as home health services, laboratory and x-ray services, transportation services, personal care services, hospice, and other services.

For some acute care services—including hospital inpatient, free-standing facilities, and physician and other professional services—total spending increased relatively fast, by five to six percent, from 2007 to 2008. Per member year, MassHealth spending for these services increased seven to eight percent. Reflecting the high proportion of total MassHealth spending for inpatient care and physician and other professional services, as well as fast growth in spending for inpatient care, these two service categories accounted for more than half ($83 million) of the $152 million increase in MassHealth spending from 2007 to 2008, while spending for hospital outpatient care declined (Figure AD). Increased spending for long-term care and other services accounted for 40 percent of the increase in total spending.

Figure AD: Growth in MassHealth FFS Spending by Type of Service, 2007-2008 ($ millions)



Source: Mathematica Policy Research analysis of MSIS claims data and capitation payments for Massachusetts Medicaid beneficiaries and Commonwealth Care enrollees with federal match, enrolled in fee-for-service Medicaid or comprehensive managed care plans.

Note: Payments for inpatient, outpatient, professional, prescription drugs, and all other services were analyzed from claims data for residents in fee-for-service Medicaid. Capitation payments for managed care plans include payments for comprehensive managed care enrollees (MCO); other behavioral health payments include payments to capitated behavioral health plans (MBHP) on behalf of FFS enrollees. Other payments for managed care enrollees include payments, transportation, dental, and other services identified in claims data. Inpatient and outpatient facility expenditures exclude professional services billed separately. Long-term care and all other services include care in long-term care facilities and rehabilitation or psychiatric facilities, as well as home health services, laboratory and x-ray services, transportation services, personal care services, hospice, and other services.

Changes in MassHealth spending for each of four major categories are reported in the following sections. These trends in MassHealth spending by type of service are based only on FFS enrollees, including those eligible for either full or restricted benefits.

As with Medicare, spending for outpatient care obtained in hospital outpatient departments is distinguished from spending for care obtained in frestanding facilities. The chapter concludes with a separate analysis of MassHealth spending for outpatient imaging services.

B. Inpatient Hospital Care

MassHealth spent $711.6 million in 2008 for inpatient care, or $955 per member year. Inpatient spending per member year grew eight percent from 2007 to 2008 (Table 43).

Table 43: MassHealth FFS Spending for Inpatient Care and Spending per Member Year, 2007-2008

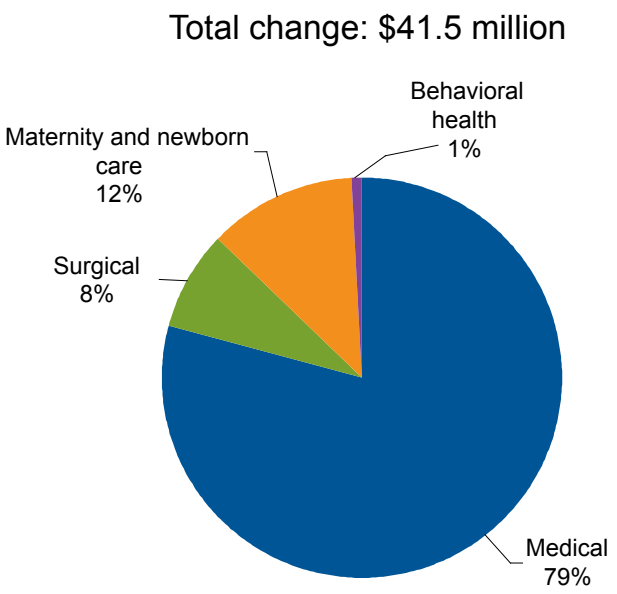
	2007	2008	Percent of 2008 spending	Percent change 2007-2008
Total spending ($ millions)				
Total	$670.1	$711.6	100.0%	6.2%
Medical	$346.1	$379.0	53.3%	9.5%
Surgical	$83.7	$87.1	12.2%	4.0%
Maternity and newborns	$205.9	$210.8	29.6%	2.4%
Behavioral health	$34.4	$34.8	4.9%	1.1%
Spending per member year ($)				
Total	$885	$955	100.0%	7.9%
Medical	$457	$508	53.3%	11.2%
Surgical	$111	$117	12.2%	5.6%
Maternity and newborns	$272	$283	29.6%	4.0%
Behavioral health	$45	$47	4.9%	2.7%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts Medicaid beneficiaries enrolled in fee-for-service Medicaid.
Note: Estimates are facility charges for inpatient care in acute care hospitals, for beneficiaries with full or restricted benefits. MBHP inpatient stays are not included.

Inpatient spending by type of admission

- Medical diagnosis-related groups (DRGs) accounted for half of MassHealth inpatient spending (53 percent) in 2008, followed by maternity-related DRGs (30 percent), surgical DRGs (12 percent) and behavioral health DRGs (five percent) (Table 43).
- MassHealth spending per member year for all inpatient care increased eight percent from 2007 to 2008, largely driven by spending for medical DRGs. Spending per member year for medical DRGs grew 11 percent, at least twice as fast as for other DRGs.
- Medical DRGs accounted for 79 percent of the growth in MassHealth inpatient spending from 2007 to 2008 (Figure AE). Maternity DRGs also accounted for a disproportionately large share of spending growth (12 percent), but remained a much smaller share of total inpatient spending compared with medical DRGs. Surgical DRGs accounted for a relatively small proportion of inpatient spending growth (eight percent) from 2007 to 2008.

Figure AE: Distribution of Change in MassHealth FFS Spending for Inpatient Hospital Care by Type of Admission, 2007-2008



Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts Medicaid beneficiaries enrolled in fee-for-service Medicaid.
Note: Estimates are facility charges for inpatient care in acute care hospitals, for beneficiaries with full or restricted benefits. MBHP inpatient stays are not included.

Inpatient spending by type of hospital and region

- In 2008, 56 percent of MassHealth spending for Massachusetts inpatient hospital care ($376 million) was associated with care obtained in Boston metro area hospitals (Table 44). Most of this spending (48 percent of total spending at Massachusetts hospitals) was associated with care obtained in Boston metro area tertiary care or specialty and other teaching hospitals. In contrast, less than half of MassHealth spending for inpatient care provided outside of the Boston metro area (19 percent of total spending at Massachusetts hospitals) was for care obtained in tertiary care hospitals.

Table 44: MassHealth FFS Spending for Inpatient Care at In-State Hospitals by Type and Location of Hospital, 2007-2008 ($ millions)

	2007	2008	Percent of 2008 spending	Percent change 2007-2008
All in-state hospitals	$659.9	$675.2	100.0%	2.3%
Metro Boston hospitals	$382.8	$375.5	55.6%	-1.9%
Other-area hospitals	$277.1	$299.7	44.4%	8.2%
Tertiary care hospitals				
Metro Boston tertiary care hospitals	$281.5	$278.7	41.3%	-1.0%
Other-area tertiary care hospitals	$121.0	$130.9	19.4%	8.2%
Specialty and other teaching hospitals				
Metro Boston specialty and other teaching hospitals	$52.6	$47.1	7.0%	-10.6%
Community hospitals				
Metro Boston community hospitals	$48.7	$49.7	7.4%	2.1%
Other-area community hospitals	$156.1	$168.8	25.0%	8.1%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts Medicaid beneficiaries enrolled in fee-for-service Medicaid.
Note: Estimates are facility charges for inpatient care in acute care hospitals, for beneficiaries with full or restricted benefits. MBHP inpatient stays are not included.

- MassHealth spending for inpatient care at hospitals in the Boston metro area declined nearly two percent from 2007 to 2008, driven by lower inpatient spending in tertiary care hospitals (a decrease of one percent) as well as in specialty and other teaching hospitals (a decrease of eleven percent). Spending for inpatient care in Boston metro area community hospitals increased two percent.
- MassHealth spending for inpatient care at Massachusetts hospitals outside the Boston metro area increased eight percent, and at about the same rate for both tertiary care hospitals and community hospitals (Table 44). This growth reflected relatively fast growth in total spending for inpatient care at tertiary care hospitals in central Massachusetts (12 percent) and at community hospitals in western Massachusetts (21 percent) (data not shown).
- MassHealth spending for inpatient care in hospitals outside Massachusetts increased quickly, but remained a relatively small share of overall MassHealth spending for inpatient care (Table 45).
- Spending per member year for inpatient care grew four percent to $906 in 2008 (Table 45). Spending per member year varied by facility type, with three percent increase for care in tertiary care hospitals and eight percent increase in community hospitals. However, spending declined nine percent in specialty and other teaching hospitals.[32]

[32] Components of growth in MassHealth FFS spending for inpatient care are not reported due to data quality issues in identifying both number of admissions and length of stay.

Table 45: MassHealth FFS Spending for Inpatient Hospital Care per Member Year by Hospital Type, 2007-2008

	2007	2008	Percent of 2008 spending	Percent change, 2007-2008
All inpatient hospital services	**$885**	**$955**	**100.0%**	**7.9%**
All in-state hospitals	**$872**	**$906**	**94.9%**	**3.9%**
Tertiary care hospitals	$532	$549	57.6%	3.4%
Specialty and other teaching hospitals	$70	$63	6.6%	-9.2%
Community hospitals	$270	$293	30.7%	8.4%
Out-of-state hospitals	**$13**	**$49**	**5.1%**	**262.4%**

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts Medicaid beneficiaries enrolled in fee-for-service Medicaid.
Note: Estimates are facility charges for inpatient care in acute care hospitals, for beneficiaries with full or restricted benefits. MBHP inpatient stays are not included.

C. Outpatient Care

MassHealth spent $577.2 million in 2008 in total for outpatient care, or $774 per member year. Outpatient spending per member year decreased two percent from 2007 to 2008 (Table 46).

Table 46: MassHealth FFS Outpatient Spending and Percent Change by Type of Facility, 2007-2008

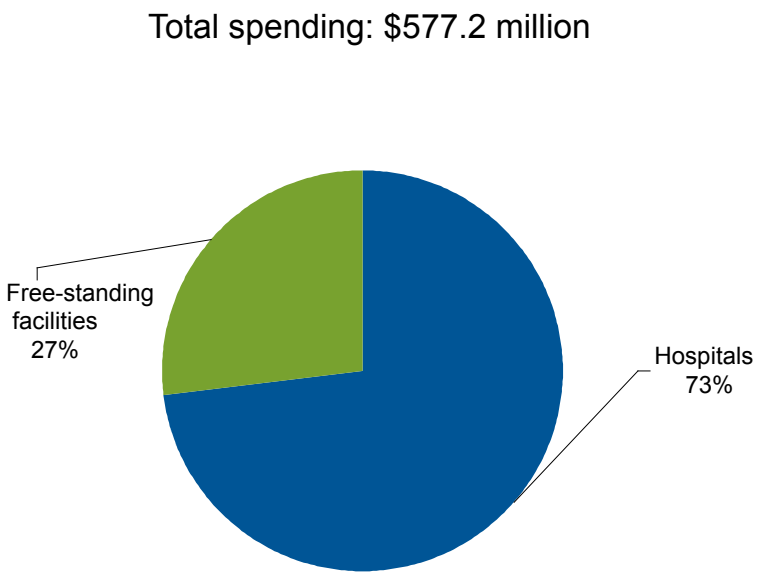
	Outpatient Spending		
	2007	2008	Percent change 2007-2008
Total spending ($ millions)	$597.6	$577.2	-3.4%
Hospitals	$450.6	$422.1	-6.3%
Free-standing facilities	$147.0	$155.1	5.5%
Spending per member year ($)	$789	$774	-1.9%
Hospitals	$595	$566	-4.9%
Free-standing facilities	$194	$208	7.1%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates are only facility payments for outpatient care, for beneficiaries with full or restricted benefits.

Outpatient spending by type of facility

- Hospital facilities accounted for the large majority (73 percent) of the $577.2 million that MassHealth spent for outpatient care in 2008 (Figure AF). Free-standing facilities accounted for 27 percent.
- MassHealth spending for outpatient services declined three percent from 2007 to 2008, reflecting a 6.3 percent decline in spending for hospital outpatient care and a 5.5 percent increase in spending for outpatient services provided in free-standing facilities (Table 46).

Figure AF: MassHealth FFS Outpatient Spending for Care in Hospitals and Free-Standing Facilities, 2008



Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates are facility payments for outpatient care, for beneficiaries with full or restricted benefits.

Components of change in outpatient spending

- Decreased spending per member year for hospital outpatient care in 2008 was a result of a six percent decline in the number of services provided per member year from 2007 to 2008, partly offset by a one percent growth in average payments per service (Table 47).
- In contrast, the growth in spending per member year for outpatient care in free-standing facilities was entirely driven by growth in the number of services provided (28 percent), while average spending per service declined (16 percent).

Table 47: Components of Change in MassHealth FFS Spending per Member Year for Outpatient Services by Type of Facility, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
All outpatient services			
2008	$774	$81	9.6
Percent change 2007-2008	-1.9%	-5.2%	3.5%
Hospital outpatient			
2008	$566	$90	6.3
Percent change 2007-2008	-4.9%	1.1%	-5.9%
Free-standing facilities			
2008	$208	$63	3.3
Percent change 2007-2008	7.1%	-16.0%	27.5%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates are only facility payments for outpatient care, for beneficiaries with full or restricted benefits.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

D. Professional Services

MassHealth spent $688.3 million in 2008 in total for professional services, or $923 per member year. Spending per member year increased eight percent from 2007 to 2008 (Table 48).

Total spending for professional services

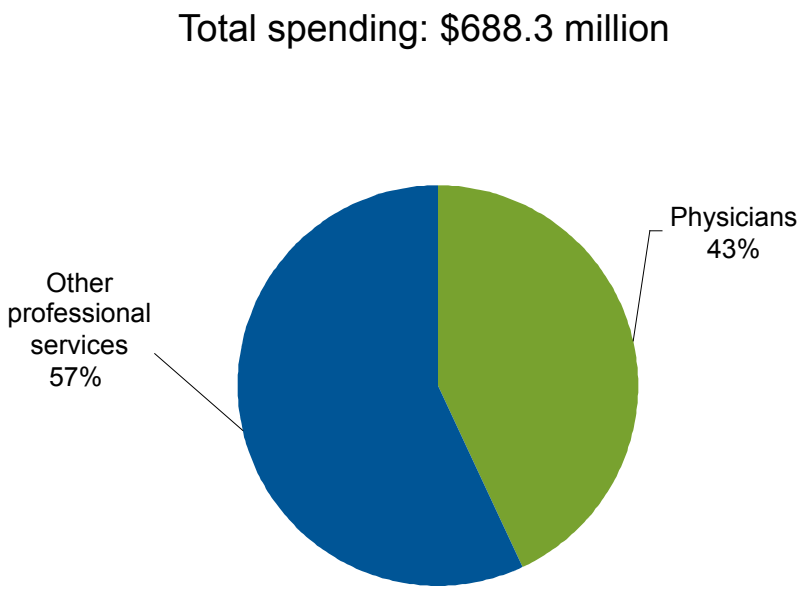
- More than half of MassHealth payments for physician and other professional services in 2008 (57 percent) were made to non-physician professionals including, nurse practitioners, mental health professionals, physical therapists, dentists, and case managers (Figure AG). Payments to physicians accounted for the remaining 43 percent.
- MassHealth spending for professional services grew six percent from 2007 to 2008 (Table 48). Total spending per member year grew eight percent to $923 in 2008. Payments to physicians grew slightly faster (seven percent) than payments to other professionals (six percent).

Table 48: MassHealth FFS Spending for Physician and Other Professional Services and Spending Per Member Year by Type of Provider, 2007-2008

	Total	Physician services	Other professional services
Total spending ($ millions)			
2007	$647.2	$277.6	$369.6
2008	$688.3	$296.4	$392.0
Percent change in spending, 2007-2008	6.4%	6.8%	6.0%
Spending per member year ($)			
2007	$855	$367	$488
2008	$923	$398	$526
Percent change 2007-2008	8.0%	8.4%	7.7%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include payments for beneficiaries with full and restricted benefits.

Figure AG: MassHealth FFS Spending for Physician and Other Professional Services, 2008



Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include payments for beneficiaries with full or restricted benefits.

Components of change in professional services spending

- The increase in per member year spending for physician services was driven by growth in both spending per service (three percent) and the number of physician services provided per member year (five percent) (Table 49).[33]
- In contrast, growth in spending for other professional services was driven by a large increase in the number of services provided per member year (14 percent), offset partly by a six percent decrease in average spending per service.

Table 49: Components of Change in MassHealth FFS Spending per Member Year for Physician and Other Professional Services by Type of Provider, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
Total			
2008	$923	$72	12.9
Percent change, 2007-2008	8.0%	-0.4%	8.4%
Physician services			
2008	$398	$49	8.2
Percent change, 2007-2008	8.4%	2.9%	5.4%
Other professional services			
2008	$526	$112	4.7
Percent change, 2007-2008	7.7%	-5.6%	14.1%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicaid.

Note: Estimates include payments for beneficiaries with full and restricted benefits.

[a] Services are defined at the claims line level. Therefore, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. (For example, injectable drugs are often billed on a single claim where the number of service units corresponds to the amount of drug administered.) Consequently, a change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

[33] MassHealth increased physician fee schedules 5.5 percent in 2008 (DHCFP estimate). Change in the distribution of service use, favoring lower-cost providers, apparently offset some of the impact of this fee change.

E. Prescription Drugs

MassHealth spent $486 million in 2008 in total for prescription drugs, equal to $652 per member year. Per member year spending increased five percent from 2007 to 2008 (Table 50).

Total spending for prescription drugs

- MassHealth spending for prescription drugs increased three percent from 2007 to 2008, totaling $486 million in 2008 (Table 50).

Table 50: MassHealth FFS Spending for Prescription Drugs and Spending per Member Year, 2007-2008

	Total spending ($ millions)	Spending per member year
2007	$471.5	$623
2008	$486.3	$652
Percent change, 2007-2008	3.1%	4.7%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include beneficiaries with full or restricted benefits.

Components of change in prescription drug spending

- The increase in MassHealth spending for prescription drugs per member year from 2007 to 2008 was due entirely to growth in the number of prescriptions filled per member year (six percent) (Table 51). Spending per filled prescription declined one percent over the same time period.

Table 51: Components of Change in MassHealth FFS Spending per Member Year for Prescription Drugs, 2007-2008

	Spending per member year	Spending per filled prescription	Number of filled prescriptions per member year
2008	$652	$53	12.4
Percent change, 2007-2008	4.7%	-1.4%	6.2%

Source: Mathematica Policy Research analysis of claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include beneficiaries with full or restricted benefits.

F. Diagnostic Imaging Services

This analysis draws together information on payments to both physicians and non-inpatient facility charges related to diagnostic imaging.

- MassHealth spent $113 million in 2008 in total for imaging services delivered in outpatient hospital departments, clinics, or other outpatient settings, or $151 per member year. Spending for imaging services per member year increased 27 percent from 2007 to 2008 (Table 52).
- MassHealth spending for imaging services grew 25 percent from 2007 to 2008 (Table 52). High-tech imaging, including CAT/CT/CTA and MRI/MRA scans, accounted for nearly 40 percent of MassHealth spending for imaging services in 2008, while standard imaging accounted for 36 percent, and ultrasound accounted for 24 percent.

Growth in spending for imaging

- MassHealth spending for high-tech imaging grew faster than for any other imaging type. From 2007 to 2008, spending for high-tech imaging grew 28 percent overall and 30 percent per member year. Spending per member year for ultrasound and standard imaging grew 23 and 25 percent, respectively (Table 52).

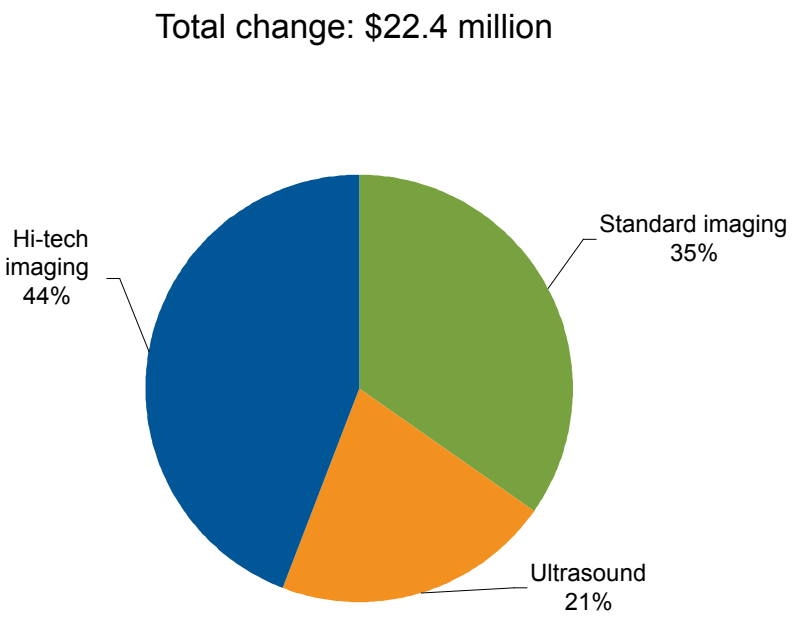
Table 52: MassHealth FFS Spending for Diagnostic Imaging Services by Type of Service and Spending Per Member Year, 2007-2008

	Total spending ($ millions)	Percent of total spending	Spending per member year
Total			
2007	$90.1	100%	$119
2008	$112.5	100%	$151
Percent change, 2007-2008	24.9%	--	26.8%
Standard imaging			
2007	$33.0	36.7%	$44
2008	$40.8	36.3%	$55
Percent change, 2007-2008	23.5%	--	25.4%
Ultrasound			
2007	$22.2	24.6%	$29
2008	$26.9	23.9%	$36
Percent change, 2007-2008	21.4%	--	23.3%
Hi-tech imaging			
2007	$34.9	38.7%	$46
2008	$44.8	39.8%	$60
Percent change, 2007-2008	28.4%	--	30.4%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include beneficiaries with full or restricted benefits. High-tech imaging included CAT/CT/CTA and MRI/MRA scans.

- High-tech imaging accounted for 44 percent of the total growth in MassHealth spending for outpatient imaging services (Figure AH). Standard imaging accounted for 35 percent of the growth in total MassHealth spending for imaging services, while ultrasound accounted for 21 percent.

Figure AH: Distribution of Change in MassHealth FFS Spending for Diagnostic Imaging Services by Type of Service, 2007-2008



Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Estimates include beneficiaries with full or restricted benefits. High-tech imaging included CAT/CT/CTA and MRI/MRA scans.

Components of change in spending for imaging

- The volume of imaging services provided per member year increased 42 percent from 2007 to 2008, reflecting very fast growth in the number of high-tech (52 percent) and standard imaging services per member year (44 percent) (Table 53). The number of ultrasound imaging services obtained per member year also increased rapidly (28 percent), though less than for other types of imaging services.
- The increase in the volume of imaging services was partly offset by lower average payments per imaging service, likely due to changes in the mix of imaging services. Overall, spending per imaging service declined nearly 11 percent from 2007 to 2008, falling much faster for high-tech (-14 percent) and standard imaging (-13 percent) than for ultrasound (-4 percent).

Table 53: Components of Change in MassHealth FFS Spending for Imaging Services per Member Year by Type of Service, 2007-2008

	Spending per member year	Average spending per service[a]	Number of services per member year
Total			
2007	$119	$103	1.16
2008	$151	$92	1.64
Percent change, 2007-2008	26.8%	-10.7%	42.0%
Standard imaging			
2007	$44	$61	0.71
2008	$55	$54	1.02
Percent change, 2007-2008	25.4%	-12.6%	43.5%
Ultrasound			
2007	$29	$125	0.23
2008	$36	$120	0.30
Percent change, 2007-2008	23.3%	-3.9%	28.3%
Hi-tech imaging			
2007	$46	$218	0.21
2008	$60	$187	0.32
Percent change, 2007-2008	30.4%	-14.2%	52.0%

Source: Mathematica Policy Research analysis of MSIS claims data for Massachusetts residents enrolled in fee-for-service Medicaid.
Note: Figures include data for beneficiaries with full and restricted benefits.

[a] High-tech imagining includes CAT/CT/CTA and MRI/MRA scans. Because services are defined at the claims line level, changes in the number of services per member month may reflect a change in the number of claims that are submitted to capture the same service units. Conversely, changes in the volume of service units included on a single claim are not reflected. A change in the average expenditure per service may reflect changes in the price per service unit, changes in the number of service units per claim line, or a change in the mix of services provided.

V. Conclusion

Spending per member year for privately insured health care services in Massachusetts grew faster than spending in either Medicare or MassHealth from 2007 to 2008. The sharp acceleration in spending for privately insured services from 2008 to 2009 indicates that the difference between private and public spending growth rates may be widening further.

A number of factors can drive growth in aggregate spending per service, including increased prices for a given set of services, increased use of more complex and higher-priced services, and increased use of higher-priced providers. In order to estimate the separate impacts of these factors as well as changes in service volume on the growth in spending, three "market baskets" of privately insured services (inpatient hospital care, outpatient hospital services, and professional services) were analyzed. This analysis parallels the methods used to develop a consumer price index, controlling for the types of goods and services purchased.

In each of the three categories, higher total private spending was predominately driven by price increases. For inpatient and outpatient hospital care, "pure" price growth accounted for most of the change in total spending. Neither changes in the distribution of care across providers nor service mix contributed nearly as much to spending growth as increased prices. For professional services, the impact of pure price was slightly less clear, due to the challenge of identifying shifts in the distribution of service use among providers. However, the same pattern was apparent: price changes drove most of the change in total spending each year.

In contrast, growth in Medicare and MassHealth spending per member year predominantly reflected increased service use per member year. Health care spending continues to outpace inflation, wage growth, and other measures of economic growth in Massachusetts. As demonstrated in this report, the significance of price in driving higher spending for privately insured health care warrants serious consideration as strategies to reduce health care cost growth are crafted and implemented. It seems likely that greater coordination of payment levels, with new collaborative strategies that engage payers and providers, as well as employers and consumers, will be needed to ensure that rising prices do not ultimately derail residents' access to high quality, affordable health care.

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